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COMPUTERWORLD

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Executive support systems can be deadly for MIS developers unskilled in corporate politics. Page 93.

Splash! IBM mid-range users in one pool

AS/400 seen as relief valve but no 'VAX killer'

BY STANLEY GIBSON
CW STAFF

NEW YORK — IBM glued together two large chunks of its fragmented mid-range processor line last week when it announced the Application System/400 series, which had carried the code name of Silverlake. In doing so, IBM climaxed one of the most speculated about and least secret product developments in its history.

The merger of its System/36 and 38 lines into a unified architecture represents a giant step by IBM to improve its competitive position against Digital Equipment Corp. and other mid-range system vendors.

Most analysts agreed the system offers competitive price/performance and is especially attractive when included in new single-price packages offering maintenance, software and support.

No killer instinct

But analysts were quick to point out that the AS/400 is far from being a "VAX killer" and mainly plugs some of the gaping holes in IBM's mid-range strategy, on which smaller competitors have been capitalizing.

"It fixed things that were broken in the IBM product line," said Marty Gruhn, an analyst at The Sierra Group in Tempe, Ariz. Gruhn said that in offering ease of use and a broad power range, the system addresses areas that had been DEC advantages.

"It's not a VAX killer. DEC is too strong to be put out of business by this," said David Andrews, president of ADM, Inc. in Cheshire, Conn.

IBM also answered DEC strengths with other moves,
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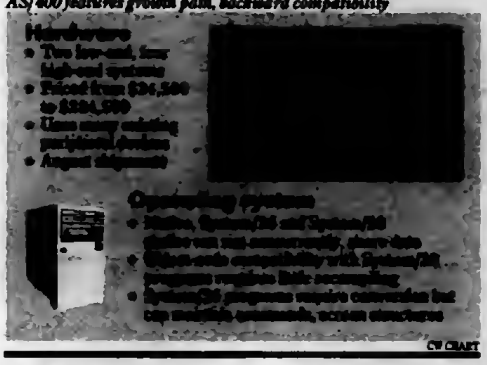
Silverlake floodgates open

AS/400 features growth path, backward compatibility



CW CHART

AS/400

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A machine they call their own

BY JEAN S. BOZMAN
CW STAFF

After years of arguing with IBM executives over System/36 and 38 specifications, users are crowing about their input in the design process of the AS/400.

"What impressed me most was that IBM listened to the customers," said Dennis Chapman, MIS manager at Georgia-Pacific Corp.'s Portland, Ore., operations. "I think that's the first time they did it." In the past, Chapman said, most user ideas were discarded.

Instead of placing a machine on the market and revising it later, IBM brought users into the AS/400 design process.

"The folks at the Rochester lab really, really listened," said James Dinwiddie, director of information resources management at the U.S. Department of Agriculture, which owns more than 2,500 System/36 machines.

Dinwiddie should know: As one of 50 members of an IBM
Continued on page 141

Net firms hike prices, cite chips

BY PATRICIA KEEFE
CW STAFF

Two major suppliers of Ethernet networks — Excelan, Inc. and 3Com Corp. — last week announced plans to raise prices for some products incorporating scarce dynamic random-access memory chips effective July 1.

Excelan said it will impose a temporary 5% surcharge on all hardware products that incorporate DRAM chips. "Chips that used to cost $2 now cost $8 to $9," said Robert Davis, Excelan's product line manager for host products.

3Com is absorbing the price increase on its intelligent adapter cards for now but will be raising prices on three products: The 3Station diskless workstation will increase by $250, or 13%; the 3Server3/200 will jump $500, or 6%; and the 3Server3/400 will climb $500, an increase of roughly 4%.

Other network vendors expressed concern about rising DRAM costs, and some said users should expect further price increases if the shortage continues.

Bill Scull, director of product
Continued on page 6

Microsoft scrambles to fix cracks in Windows support

BY STEPHEN JONES
CW STAFF

NEW YORK — Microsoft Corp. is expected to join a group of its most loyal Windows advocates this week in what could be a last-gasp effort to earn widespread acceptance for the operating environment.

The joint marketing effort, combined with an apparent shift in the Windows marketing strategy, is aimed at bolstering sagging interest in Windows as the de facto link between existing personal computers and the OS/2 operating system. Some observers, however, questioned whether the moves are too little, too late for Windows.

The Windows/Presentation Manager Association consists of top Windows developers, hardware OEMs, corporate developers and end users, all of whom will try to improve Windows' image. The association is surfacing at a critical time for Windows. Recently, Microsoft has quietly backtracked on its Windows positioning in a bid to prove that the software is not simply a stopping point on the road to OS/2.

In the past, Windows was portrayed as the environment that would give users a graphical user interface today and provide a bridge that would link users and their applications to IBM and Microsoft's Presentation Manager in the future. The scenario seemed to spell certain death for Windows once the Presentation Manager hit the scene.

Now, Microsoft is emphasising a coexistence strategy, in which PCs running Microsoft MS-DOS and Windows will be able to run on the same Microsoft LAN Manager network with OS/2-based PCs. Microsoft said it expects that type of implemen-
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ETA swallows Unix super-energy pill. ETA Systems adopts AT&T version of Unix for all its supercomputers, trades knocks with rival Cray. Page 15.

Engine tune-up. Novell takes the wraps off its long-anticipated SQL engine, which is geared toward the company's Netware network operating system. A half-dozen developers, including Lotus, ooh and ahh and pledge undying support. Page 17.

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"Many users said: 'Your objective is right, your implementation is right, and, by the way, you have more work to do.'"

RON RETTUS
IBM

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NEWS

User disdain may erase data digital audio tape

BY JAMES A. MARTIN
CW STAFF

After years of talk and anticipation, digital audio tape (DAT) as a data storage device will finally become available to the U.S. consumer market beginning next month. But the fledgling technology faces sizable obstacles — high prices, a lack of standards, sluggish data access rates and potentially strong competition from other up-and-coming storage formats, such as erasable optical disks.

If that's not enough, DAT must also square off with MIS. Users interviewed recently by *Computerworld* said that in just about all cases, ¼-in. streaming tape adequately fulfills the backup and archiving needs of micro, minicomputer and workstation users, functions DAT is hoping to replace or at least augment.

"There's not a lot of faith in the user community right now about DAT," said Kevin Farrell, manager of microcomputing and management services at Firestone Tire & Rubber Co. in Chicago. "Erasable optical disks would be of more interest, because DAT does not use a random-access technique like erasable optical will."

Nonetheless, Gigatape, Inc., the Carlsbad, Calif.-based research and development and marketing arm of Munich, West Germany-based parent company Gigatape GMBH, will begin shipping in July the first DAT system designed as a data storage device for the U.S. market.

Meanwhile, Hewlett-Packard Co., through a joint venture with Sony Corp., is planning to launch its first DAT storage devices later this year, and models from vendors such as Hitachi Ltd., Wangdat, Inc. and California Peripherals Corp. are also expected to emerge within the next six months.

Proponents say data DAT systems have great potential as a backup and archiving medium for a variety of CPUs, especially data-intensive engineering workstations. In addition, data DAT can also be used as an on-line device in certain vertical market applications.

"In the medical imaging world, data DAT could do well as an on-line device because of the tremendous amount of data to be analyzed," said Dennis Waid, organizer of the data DAT standards committee and executive vice-president of Peripheral Strategies, a storage consulting firm in Santa Barbara, Calif. A data DAT system will offer a data access rate of about 20 sec., far longer than most standard storage media today. But, Waid said, "in a medical imaging situation, the data transfer rates don't always need to be high."

Industry watchers said they have high hopes for DAT. Freeman Associates, a management consulting firm in Santa Barbara, Calif., has predicted shipments of data DAT to grow by 296% in the next five years, increasing from 600 units shipped worldwide this year to 585,000 units in 1993. Within the U.S., Freeman said it expects some 500 data DAT units to be shipped this year and 351,000 in 1993.

Data DAT, compared with the industry-standard ¼-in. tape drive for data backup, will offer "four times the price but with eight times the capacity and three times the transfer rate," said Lee Eliser, executive vice-president of Gigatape's California operations.

Gigatape's market entry, the rack-mounted Giga 1200, will offer 1.2G bytes of data storage capacity and a data transfer rate of 192K byte/sec. at an initial cost to end users of $6,500. In comparison, a typical rack-mounted ¼-in. tape drive today offers 320M bytes of storage capacity and data transfer rates of 240K byte/sec. and costs the end user anywhere from $1,500 to $2,500.

Prices shrinking

Eliser and data DAT analysts said end-user prices will drop significantly as manufacturing volumes increase in early 1989, giving data DAT a pricing edge over streaming-tape drives. While DAT has been available for some time to Japanese consumers, its acceptance in the U.S. has been stymied by the music recording industry, which fears loss of royalties because of DAT's high-quality dubbing capabilities.

The HP-Sony venture is developing its data DAT products independently to sell to end users and license to OEM vendors. To date, according to an HP spokesman, HP and Sony have jointly licensed their technology to Archive Corp., Wangtek, Inc. and its offshoot Wangdat, Inc. and Exabyte Corp.

The HP spokesman would not elaborate on the company's licensing and data DAT plans.

Data DAT vendors have a big selling job ahead if they want to convince MIS of their products' merits. "We use floppy disks and streaming-tape drives for backup, and it's adequate for our needs," said Mike Canfield, a senior systems analyst at Airborne Freight Corp. in Seattle. "We have no strong need at this time for something that gives us 1G byte of storage."

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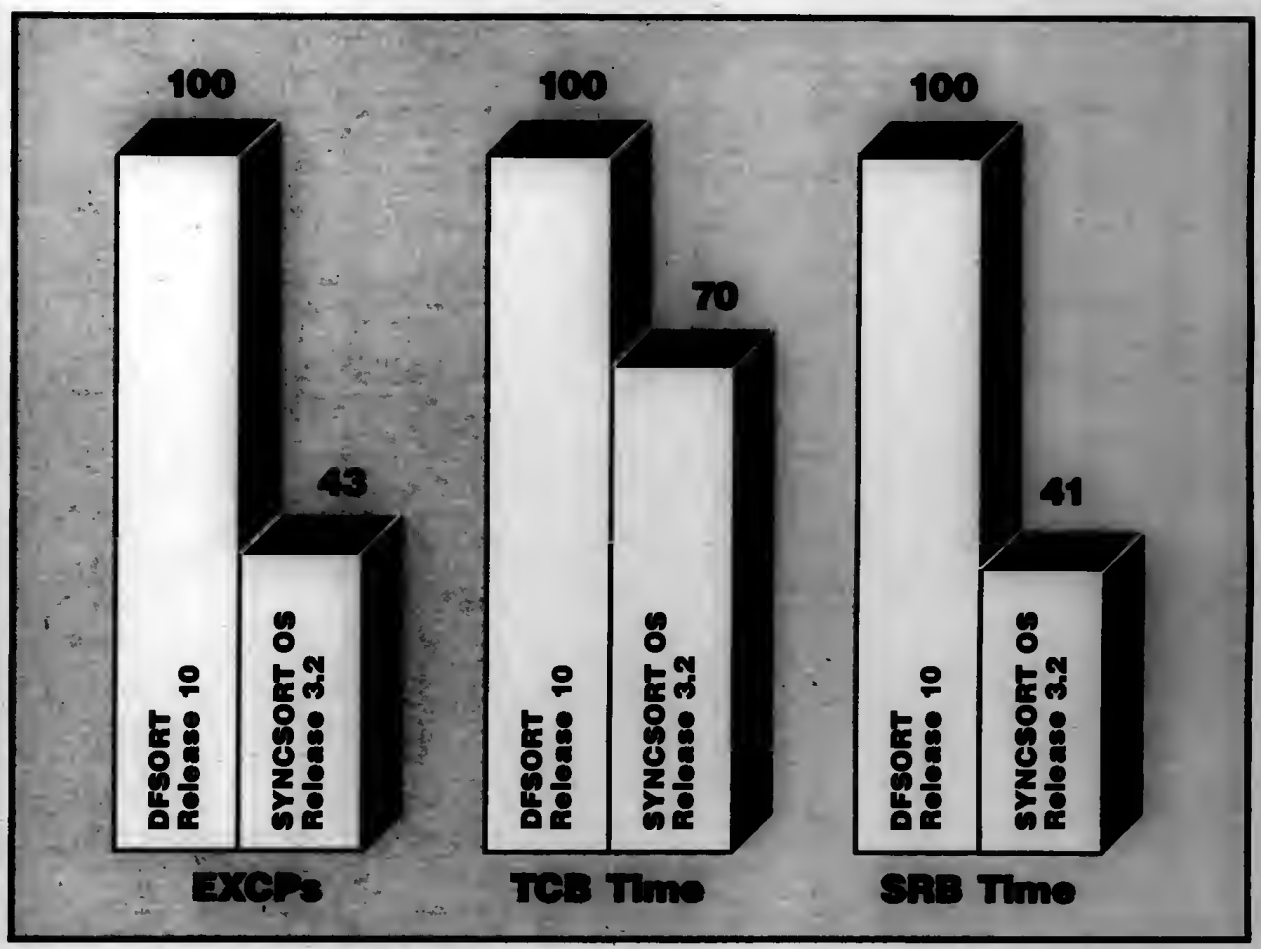

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OS/2 users hedging on graphics interface

BY ALAN J. RYAN
CW STAFF

NEW YORK — Companies making the move to IBM's OS/2 said the concept of a graphical user interface for the operating system intrigues them, but it is not likely that its sidekick, the Presentation Manager, will become an overnight success.

In an informal poll taken by *Computerworld* at last week's PC Expo here, several vendors interviewed said their DOS users are not particularly enamored with the Presentation Manager or any other graphical interface. Although such an interface eases learning the operating system, those who understand DOS and are just getting used to OS/2 said this user-friendly perk is just one more thing to learn.

"Trying to show the Macintosh to our DOS users is difficult," said Joanne DiPietro, a senior systems analyst at Johnson & Johnson in New Brunswick, N.J. "They don't even want to use a mouse."

With an interface similar to Apple Computer, Inc.'s Macintosh, the Presentation Manager could become a hit among new users, and companies adopting it will not have to move from their comfortable IBM and Microsoft Corp. technology. The Presentation Manager will be available in OS/2 Standard Edition 1.1 in October, according to IBM.

"The Presentation Manager will make things easier for novice users, and because of the superiority of OS/2, it will enable power users to do more," said Lorie Mouktas, a senior data analyst at The Singer Co.'s Electronic Systems Division in Wayne, N.J.

"With the Presentation Manager, [users] wouldn't lose DOS and they stick with the IBM family," said Frank Kingkiner, a programmer in the publishing systems group of Dow Jones & Co. in New Brunswick.

Some companies have already started gearing up for OS/2 and its companions.

Hilly Fuchs, director of the information center at Continental Grain in New York, said that the move to the Presentation Manager will likely be a 1989 decision and that it will most certainly be application-specific rather than companywide.

PC Expo

Novell starts SQL engine; IBM details PC return policy. Page 17.

"Maybe over the next five years it will become a standard," he said.

At Aetna Life and Casualty Co. in Hartford, Conn., the Presentation Manager is one of many aspects of OS/2 currently being looked at, according to Bob Maio, a systems manager. "We're not really planning for [the Presentation Manager] yet," he said, but "we're looking at it because we have to get into OS/2."

Maio said that some of the company's power users will be very interested in the Presentation Manager and OS/2, "but generally, we will have to introduce it slowly. We have to understand it ourselves and show the benefits to the users first."

While the upgrade to the Presentation Manager will be free for current OS/2 users, users who want to move to both OS/2 and the Presentation Manager will find expenses to be high.

Teradata claims lead

Says data base 2.7 times faster than DB2

BY CHARLES BABCOCK
CW STAFF

LOS ANGELES — Teradata Corp. jumped into the benchmark quagmire last week, claiming its relational data base machine can process transactions at a rate 2.7 times faster than IBM's latest version of DB2.

Teradata released a benchmark of its DBC/1012, which it claims duplicates the credit-authorization transaction used by IBM in benchmarking DB2.

The results of the benchmark indicated that the DBC/1012, configured with 191 parallel processors — which is equal to roughly 191 million instructions per second — was capable of executing 1,176 transaction/sec. When DB2 Version 2 was announced recently, IBM cited 438 transaction/sec. as the maximum achievable rate.

Neither Teradata's nor IBM's benchmarks have been certified by independent auditors as meeting a stated set of criteria.

Other vendors, including Sybase, Inc., Relational Technology, Inc., Cullinet Software, Inc., Informix Software, Inc. and Tandem Computers, Inc., have attempted to execute their own versions of a debit-credit benchmark — a more complex test than those conducted by IBM and Teradata — under varying conditions and with widely varying results.

Industry observers said the benchmarks have been done so inconsistently that it is impossible to compare results.

Omri Serlin, president of Itom International and publisher of "FT Systems," a Los Altos, Calif.-based newsletter that frequently addresses the muddled benchmark issues, called the Teradata benchmark results "an impressive number."

"There's IBM huffing and puffing, giving DB2 every benefit in the book" and coming up with a figure that is less than half the Teradata data base machine's performance, he noted.

At the same time, Serlin said, Teradata cannot be positive that it is running the same test as IBM because the latter company has not published its benchmark criteria.

Serlin noted that Teradata did not state a precise price/performance advantage over IBM other than to say the Teradata system was about two-thirds its price. The Teradata system is a specialized, fixed-purpose piece of hardware, while DB2 and the IBM 3090 Model 600E, on which it was tested, represent a more flexible, general-purpose system.

Charge it

Daniel F. Holle, Teradata headquarters systems engineer, said the benchmark used a transaction that mimics a simple credit card number check against a table of 200,000 lost or stolen credit cards. The benchmark allows for 10 million credit card numbers, so there is only a 2% chance of a hit on a lost or stolen card number match.

In that event, the transaction requires the creation of a record for the source of the authorization check.

Very high performance figures are attainable with such a simple transaction. The whole lost or stolen table, for example, is likely to be resident in system memory after the benchmark has been allowed to run for a given amount of time.

Once fully loaded, it no longer requires I/Os to read data from a data base on disk. The elimination of time-consuming I/Os enhances the results of any benchmark.

Windows

FROM PAGE 1

tation to extend Windows' life span by six years.

"We never meant to say that Windows would end when Presentation Manager began, but some people interpreted it that way," said Russ Werner, general manager of Microsoft's DOS and Windows group.

Founding companies in the WPMA include such longtime Windows boosters as Palantir Software, Symantec Corp., Da Vinci Systems and Zsoft Corp. But conspicuously absent from the group's roster are such major developers as Ashton-Tate Corp. and Lotus Development Corp., neither of which has nibbled at the Windows bait.

"It doesn't seem that the group will add much momentum to Windows if there aren't any new companies participating," said Bill Higgs, director of software research at Cupertino, Calif.-based Infocorp.

Monkey wrenches

While Microsoft contends that Windows is shipping at a clip of 50,000 copies per month, a number of unrelated factors have recently converged to work against it:

- Costs associated with the memory needed to run Windows are climbing rapidly because of the shortage of dynamic random-access memory chips.
- The Presentation Manager threatens to supplant its Windows parent and dash users' investments in the software.
- Intel Corp. 8086- and 8088-based machines, which do not have enough horsepower to adequately support the graphics-based system, continue to dominate the corporate landscape.
- Many users of advanced, high-performance Intel 80286- and 80386-based PCs are saving their money for OS/2.

The difficulties are apparent in user acceptance of Windows; Infocorp estimates that only 8% of DOS business users ran Windows on their PCs in 1987.

Microsoft responded last week by releasing Windows 2.1, which is available in versions tailored to 80286- and 80386-based PCs. The Redmond, Wash., developer continues to downplay Windows as an environment for 8088-based computers and pump it as a high-end system for corporate America.

The firm has also changed its stance on Windows' role with the Presentation Manager.

Regardless of Microsoft's specific strategy, Windows has succeeded on one major point: acceptance of Chairman Bill Gates' graphical user interface brainchild. Boosting an interface similar to the Presentation Manager, Windows helped earn support for that program from the industry's biggest players, including IBM.

That interface — for Windows and the Presentation Manager — could have some problems of its own. With the graphics-intensive system demanding so much memory, users may back off from jumping on the bandwagon until chip prices drop to earlier levels.

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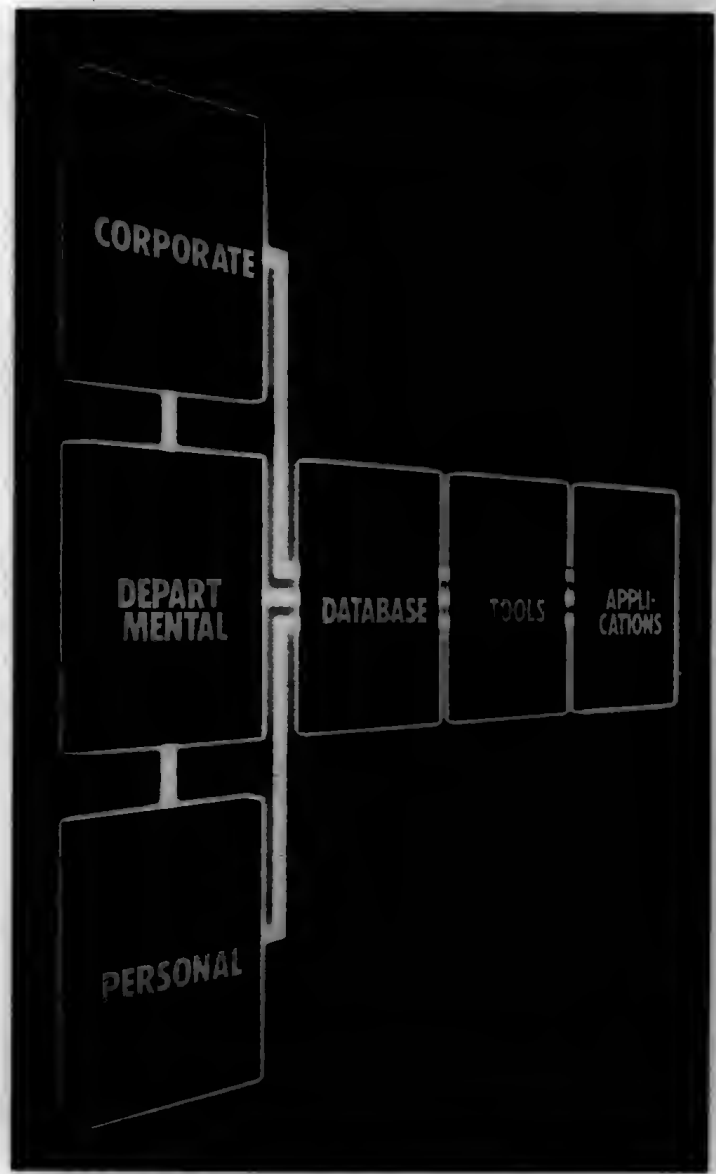

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NAS doubles DASD storage

SANTA CLARA, Calif. — National Advanced Systems (NAS) introduced a version of its disk storage subsystem "J" last week that doubles the storage per drive for a 37% premium.

NAS's 7380 DASD Model JX fits between Models J and K in storage capacity and offers up to 10G bytes per unit. NAS doubled its capacity by recording tracks on the entire surface of the 9½-in. platter for the Model JX instead of on only half of the surface used on the Model J, according to Minh Le, NAS's worldwide marketing manager. The Model K has 15G bytes, achieved by laying down the tracks with a higher density.

Each head disk assembly for the JX has 1.26M bytes of storage. There are eight assemblies in each frame.

Fully configured, a 7380 DASD farm could contain up to 60G bytes and can be reached in 2.5G-byte increments, according to the company. As the first Model JX box in a string of direct-access storage devices (DASD), it costs $107,350, with subsequent boxes at $85,500.

Net firms

FROM PAGE 1

marketing at Ungermann-Bass, Inc., said his company is contemplating a surcharge similar to Excelan's and will announce a decision within the next 30 to 60 days.

If more local-area network and communications hardware suppliers hike their prices because of quadrupling DRAM prices — and to a lesser degree, static RAM chip shortages — users can expect to see the thus-far steady downward pricing trend in LAN components screech slowly to a halt.

"It will absolutely reverse the trend," said Michael Barker, president of Micom-Interlan, Inc. Excelan's Davis agreed.

Even if this comes to pass, user resistance is not anticipated, according to vendors and a few industry analysts. Digital Equipment Corp. has already set a precedent in the workstation market by attributing price increases on system and memory products announced two weeks ago to the DRAM shortage.

"DEC's move has created an umbrella for all," said Patrick Cortin, president of Proteon, Inc., a supplier of token-ring cards. "I wouldn't be surprised if in the next four weeks a number of network vendors raise their prices," said Joseph Seidler, an analyst at Infonetics, Inc.

There is some likelihood that "resellers may be forced to pick up the slack if users resist, so a 5% increase might translate into a 2% to 3% increase for the user," Seidler added.

Also considering DRAM-related price hikes are Proteon, Gateway Communications, Inc., NCR Corp. and Sytek, Inc.

"We are under some cost pressure, but it hasn't translated into a pricing increase yet," said Gateway Communications President Walter Schramm. "Ultimately, we see increased prices," said John Day, Sytek's director of materials.

Not everyone is overly concerned, however. Micom-Interlan has no intention of raising prices because of DRAM costs, according to Barker.

Because most of its DRAM-based servers are built overseas, pricing is less of an issue for Novell, Inc. "It's having zero impact on us," a spokesman said. Quadram Corp. said it is absorbing any impact on two DRAM-based cards and expects the shortage to ease shortly.

Users scratch heads over OSF's impact

BY JULIE PITTA
CW STAFF

SAN FRANCISCO — The Open Software Foundation (OSF) made its pitch directly to Unix users last week and left them befuddled.

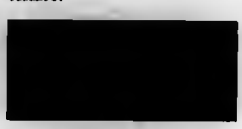
"The biggest reaction is clear: It's confusion," said Alan Nemeth, president of Usenix, a users group that hosted an OSF briefing at its annual meeting here. "The bulk of our membership and the Unix community doesn't understand what the effect of OSF will really be."

Clouding the picture for Unix users are the two competing efforts for control of that operating system: the alliance of AT&T and Sun Microsystems, Inc. on one side and OSF heavyweights IBM, Digital Equipment Corp. and Hewlett-Packard Co. on the other.

The OSF's message to users was an open Unix. Within weeks, the foundation is slated to issue a request for technology, asking members and nonmembers to submit their user interface technologies for consideration.

OSF officials emphasized that technologies from outsiders, including AT&T's Open Look, would compete equally with user interfaces from sponsor companies.

The OSF is planning a technical conference within a couple of months, after which it is scheduled to choose a single-user interface.



The OSF will develop its version of Unix, based on IBM's AIX, for a number of as-yet unselected hardware platforms that will be chosen based on technical merit, officials said. Sun's Scalable Processor Architecture, commonly known as Sparc, will be considered, they said.

"We are interested in proving portability, not endorsing an architecture," said John Paul, the OSF's director of development. Paul is on sabbatical from Nixdorf Computer Engineering, Inc.

Despite the OSF's attempts to go public, it will likely take some time before the Unix community is converted.

Unix buyers steer clear of AT&T

More than half of survey respondents look for IBM endorsement

When it comes to considering future Unix purchases, MIS managers are more likely to go with industry heavyweights IBM, Digital Equipment Corp. and Sun Microsystems, Inc. rather than the operating system's originator, AT&T.

This lack of support for AT&T was one of the conclusions reached by a recent *Computerworld* survey of 295 MIS managers' opinions of the Unix marketplace.

More than half of those surveyed who said they intend to make a Unix purchase said they would consider Sun as their vendor. Almost 41% said they would consider DEC, and 38% would consider IBM. AT&T won votes from 28.8% of the group.

Apollo Computer, Inc., longtime workstation rival to Sun, got a nod from 26.9% of the group. Unisys Corp. would be considered by 21.2% of respondents.

IBM was strongly favored in the survey. When respondents were asked if an IBM endorsement of a Unix version would influence their Unix purchasing decision, 52.3% said they would more likely purchase the IBM-endorsed version.

Nothing to brag about

Other survey results, however, suggested that IBM and other favored computer companies have nothing to gloat about. The majority of respondents expressed no serious commitment to Unix. Of those surveyed, nearly 61% said Unix was not an important part of their company's future.

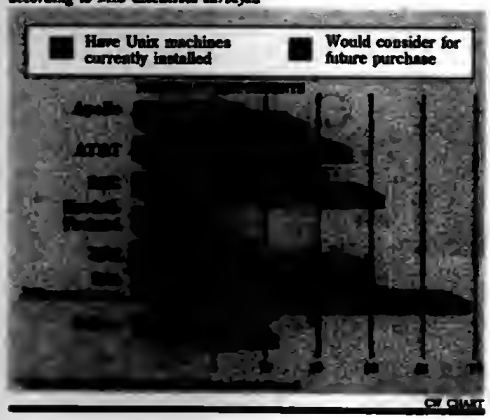
Almost 77% said they did not currently have a Unix-based system installed, and nearly 79% said they did not have plans to make a first-time purchase or additional system purchases in the next 12 months.

The respondents were a sampling of CW readers who hold managerial posts in MIS departments.

— ROSEMARY HAMILTON

Leading lights

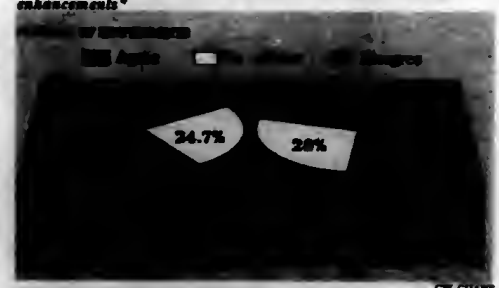
*Sun and DEC are most likely to benefit from future Unix purchases, according to MIS executives surveyed**



CW CHART

Hands off!

*More than half of the MIS execs polled said they are greatly concerned with Unix portability but not with an individual vendor's enhancements**



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Cancel that order

The Open Software Foundation's proposed alternative Unix could delay purchase plans of one-quarter of the MIS professionals surveyed

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Facts and figures

The AS/400 closely resembles IBM's System/38 architecturally, using 48-bit addressing and 32-bit processing. Its operating system, called OS/400, is closely related to the System/38's CPF operating system and includes a similar relational data base feature.

Consisting of six models ranging from $24,500 to $284,500 in price, the AS/400 processors are scheduled to be generally available in August and feature the following:

- Low-end models, the B10 and B20, housed in tower-type cabinets and not upgradable to the more powerful Models B30, B40, B50 and B60. The larger systems are rack-mounted in cabinets similar to those of the 9370 processors.
- Use of the 9332 and 9335 disk drives, which are also used with the 9370. They do not use 3370-type disks, which are widely used with the System/38.
- OS/400 loaded prior to delivery.

The machines effectively replace all System/36s and 38s except the low-end System/36 Model 5363, introduced in October 1987. However, IBM will continue to sell all models of the System/36 and 38. IBM cut prices on the latter but not on the System/36.

IBM reduced the price of the System/38 Model 700 by $25,000 and cut model upgrades within the line by amounts ranging from $5,000 to $25,000. But IBM did increase one upgrade price; the cost of going from the Model 8 to the Model 400 or 600 rose $7,750.

STANLEY GIBSON

The new lineup

IBM's AS/400, the much anticipated Silverlake project, features six processors

B10	0.5	4M to 8M	Four to 12	9.4GM	$24,500*	Microvax 3000
B20	0.7	4M to 16M	Eight to 20	9.4GM	$44,000*	8350, Microvax II
B30	0.8	4M to 36M	12 to 30	6.8G	$40,500	8350, Microvax 3500
B40	1.3	8M to 40M	24 to 48	6.8G	$87,500	Microvax 3600
B50	2	16M to 48M	36 to 80	12.0G	$171,500	6220, Microvax 3600
B60	3	32M to 96M	64 to 150	27.2G	$284,500	6220, 8550

* Millions of instructions per second and VAX comparisons are estimated by International Data Corp.
* Includes operating system
* Includes disk and tape

INFORMATION PROVIDED BY IBM
CW CHART

AS/400

FROM PAGE 1

such as promoting third-party applications and offering a one-year warranty on the AS/400 (see story above).

But most important for the more than 200,000 System/36 and 38 users, many of whose processors have reached the limits of their computing power, more capacity is now available without a costly and difficult migration to another architecture. The consolidation of the System/36 and 38 also eliminates communication problems faced by users who had both systems installed.

The Sierra Group's Gruhn predicted that smaller mid-range vendors, such as Data General Corp., Wang Laboratories, Inc. and Hewlett-Packard Co., will be hurt more than DEC. "They'll get clobbered, because they target the medium and small companies," she said.

"Unisys, Wang and NCR should be concerned about this," said Charles T. Casale, president of the Aberdeen Group in Boston, seconding Gruhn's assessment that smaller competitors in the small business market will be hurt the most by IBM's announcement.

Although IBM clearly intends the machine to be used by small businesses, IBM Vice-President and assistant group executive for mid-range systems Larry Ford included departments of large corporations as target users. As such, the processor could take away from IBM 9370 sales. Ford reiterated IBM's stated purpose for the 9370 as a distributed processor for companies committed to the 370 architecture. He said the 9370 will also be stressed for computer-aided design and manufacturing, numeric computing and Unix-based processing.

But, Casale said, "Silverlake is the 9370 killer. They finally introduced the machine the 9370 was a marker for."

Not bowled over

Although analysts praised the machines as well-positioned for their target users, the technology itself was not greeted with awe. "The technology is a real snooze. There's no multiprocessing and no Unix," Gruhn said. "This is not a technical machine, this is a small business machine," Casale observed.

However, IBM told analysts that clustering, multiprocessing and reduced instruction set computing are being considered as enhancements. "Clustering and multiprocessing are definitely coming, but not until 1990, for engineering reasons," Andrews said.

Andrews said what be called the superior architecture of the AS/400, which borrows heavily from the often-overlooked System/38, will cast 370-type systems in an unfavorable light.

An advantage the AS/400 has over other machines, according to Andrews, is the relational data base included in the OS/400 operating system, which is similar to that of the System/38's CPF operating system. "If you want those benefits on other machines, you lose performance and have to pay a lot," he said.

But Phil Varney, senior manager of distributed systems at McCormack & Dodge Corp. in Natick, Mass., said that both the System/38's CPF operating system and DEC's VMS are very easy to use and offer similar levels of programmer productivity.

Varney said the clustering feature offered on VAXs is a plus but that IBM's Advanced Program-to-Program Communications on the AS/400 can accomplish some of the benefits of clustering, such as accessing a file on a different processor.

Gary Hoppe, manager of U.S. sales consultants at DEC, claimed System/36 users will face a conversion of some difficulty in moving to the new system. He claimed that the cost of moving from a System/36 to either the AS/400 or a VAX would be comparable.

Lease plan ring sounds familiar

BY CLINTON WILDER
CW STAFF

It might be called "Back to the Future." To veteran IBM customers and observers, IBM Credit Corp.'s Total System Lease announced last week for the AS/400 hearkened back to the days when IBM 370 mainframes were rented as bundled packages that included maintenance and peripherals — with software bundled in for free.

The aggressively priced Total System Lease will provide users with one monthly invoice for their hardware, operating system software and maintenance financing. In addition, customers can lock in today's maintenance prices for up to five years as part of the deal.

In essence, AS/400 customers considering leasing must weigh the advantages of the bundled deal against the flexibility they could keep by leasing or buying the CPU only. The Total System Lease "could be attractive because of the convenience," said Pete Samsel, manager of financial services at Aetna Life and Casualty Co. in Hartford, Conn. "But it might hamper the savings you could get from competition if, for example, you wanted third-party maintenance."

Mixed bag

IBM Credit, which has become more aggressive than ever in competing with third-party lessors on mainframe deals, will now assault the mid-range. Lessors of System/36s and 38s were mixed on how successful the lease will be.

"It's a good move, much as I hate to say it," said Mark Giannini, vice-president of marketing at mid-range lessor Grammco National of Tennessee, Inc. in Memphis. "It will be very hard for a third party to offer the maintenance, at least initially."

Comdisco, Inc., the world's largest third-party lessor, was more skeptical about the Total System Lease. "We don't feel it's a big threat," said Jack O'Connell, Comdisco's marketing vice-president in charge of System/36 and 38 leasing.

But the lease may be directed more at the less sophisticated small businesses, according to Bob Djurdjevic, president of Annex Research in Phoenix. "The entry-level customer gets the best deal," he said, referring to lease terms on the AS/400 B10 and B20 models. "IBM has made it easy for him to sign once on the dotted line."

Talk of the town

"Much of what is the good news of this announcement was learned from the mistakes of the 9370 announcement. . . . The 9370 is a major issue. Will the AS/400 product line become too successful for IBM's own good? Unless IBM enhances the 9370, the AS/400 will eat into it."

Bob Djurdjevic, president, Annex Research

"The inroads DEC has made in the mid-range are because IBM didn't have an easy-to-use alternative until the AS/400. I see this as one of the most important product lines IBM has produced in a long time."

David Tory, executive vice-president, Computer Associates International, Inc.

AS/400 "seems like where a lot of the mid-range SAA architecture is going to rest. There are aspects of it that make its PC-to-midrange-to-mainframe file transfer a lot more clean than the current VM or VSE strategies."

Mario Morino, chairman, Morino Associates

"To my mind, the AS/400 does not have a major niche in corporate environments that are dominated by two-tier PC and mainframe strategies. AS/400's strength in peer-to-peer networking fits in for companies with satellite operations with requirements to communicate to the corporate headquarters."

John Pickens, senior communications architect, Communications Solutions, Inc.

"It was interesting to see integrated utilities on it, such as backup security and SNA. Other than that, it was pretty much what I expected. I'm glad that the 9370 can get on with its business, now that the other shoe has finally dropped."

Robert Cook, chairman, VM Software

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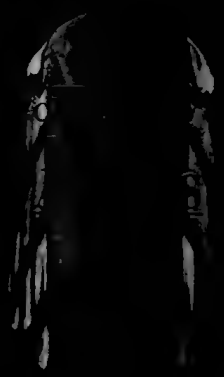

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DATAMATION

Users applaud low-cost Compaq 386

BY ALAN ALPER
CW STAFF

NEW YORK — Compaq Computer Corp.'s Deskpro 386S — its new 16-/32-bit microcomputer — received strong endorsements from PC Expo attendees last week who are seeking affordable machines running 32-bit software.

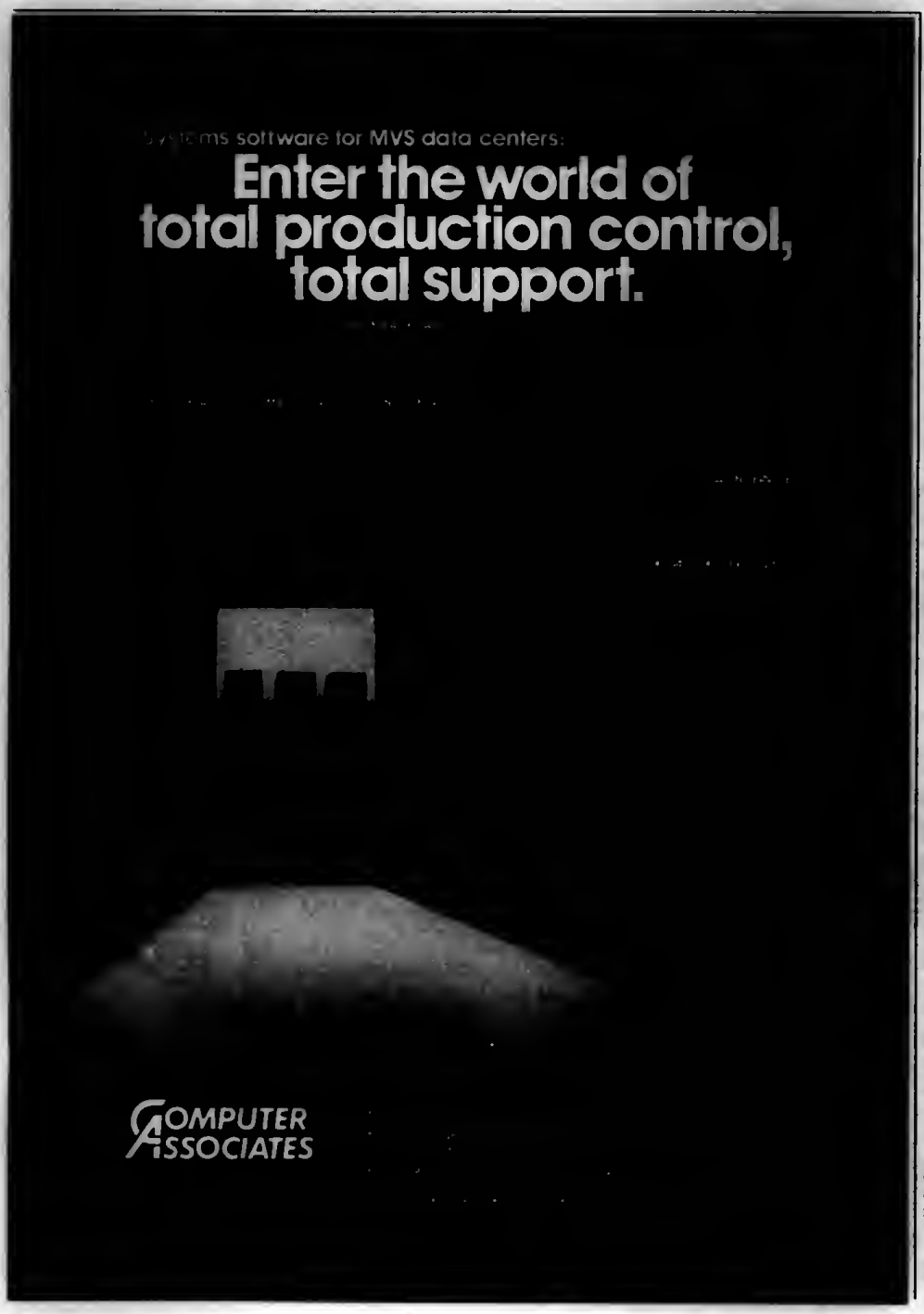
The system, which was introduced here last week alongside faster Intel Corp. 80386-based microcomputers [CW, June 20], is expected to speed the shift away from Intel 8088- and 8086-based machines to higher performance microcomputers.

Designed around Intel's hybrid 16-MHz 80386SX chip, the Deskpro 386S offers 32-bit processing and 16-bit addressing, providing roughly 85% of the performance of Intel 386-based machines. Yet because of lower production costs, the new system is priced in the same range as 286-based micros.

Compaq Marketing Vice-President Michael Swavely said the Deskpro 386S — which accepts all 8- and 16-bit add-in boards and peripherals — runs 20% faster than IBM's Personal System/2 Model 50Z, which uses a zero-wait-state Intel 80286 processor and requires IBM Micro Channel-compatible add-in devices.

"We view [the 386S] as an alternative to 286 PCs," Swavely said. "We see it as the fundamental workstation for basic business professionals."

Potential customers at PC Expo said they were impressed with the machine's price points, which ranged from $3,799 to $5,199, and small footprint — a radical departure from Compaq's usual oversized desktop designs.



Delighted users

Moreover, personal computer users delighted at the 386S's video quality — gained by virtue of a newly designed IBM Video Graphics Array (VGA) controller said to offer 50% better performance than other VGA controllers — and configuration flexibility that allows for the use of up to four different types of internal mass-storage devices, including both 5¼- and 3½-in. fixed and flexible disk drives and ¼-in. tape drives.

Richard Hellmann, manager of emerging technologies at Chubb & Son, Inc., a Warren, N.J., insurance company, said the Compaq machine could fit well into his firm's purchase plans. "It's about the same price as 286s and uses the same boards that we already have in stock," he said. "I like it versus other Deskpros because it's much smaller, and desk space at our company is at a premium."

Robert Fosina, an assistant systems analyst at General Foods Corp.'s meals division in White Plains, N.Y., said the 386S would be the perfect platform for power-hungry users still using 8088 and 8086 machines.

One potential problem with the 386S, Fosina pointed out, would be if Compaq does not provide a means of upgrading to a faster hybrid or a full 32-bit microprocessor. A Compaq engineer said there are currently no upgrade plans, but because the 80386SX resides on a smaller board, it is unlikely an upgrade to a full 32-bit processor could be accomplished.

The 386S does not seem to appeal to systems developers and Micro Channel devotees, however. "We need the power up front, unlike end users," said Bill Talpey, a senior software programmer at Crum and Forster, Inc., a Morristown, N.J., insurance company. "When you're doing development with OS/2, the additional power of true 386 micros is extremely important."

John Harner, a partner with the tax division at Arthur Andersen & Co. in Chicago, said his company is committed to the Micro Channel-compatible micros for desktop requirements. He said he firmly believes IBM will soon reveal why the Micro Channel will make a difference in optimizing applications developed to run under OS/2.

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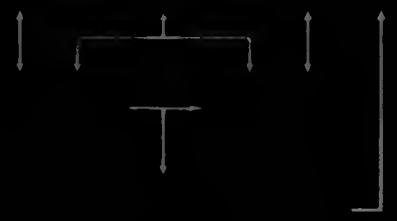

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Group gains control of Zenith stock

BY ALAN J. RYAN
CW STAFF

NEW YORK — A group of investors here last week said it has become the single largest shareholder in the financially struggling Zenith Electronics Corp. The group said it intends to encourage management to enhance stockholder values, a financial euphemism often meaning the breakup and sale of large parts of firms for prices greater than the stock value.

Brookhurst Partners Limited Partnership has made a filing to the Securities and Exchange Commission reporting beneficial ownership of 1.85 million shares, or 7.1% of the common stock of Zenith.

Zenith's major lines of business include personal computers, computer components and consumer electronics products such as television sets and videocassette recorders.

According to published reports, the partnership "does not consider itself a passive investor." The group said it may continue to acquire additional shares of Zenith stock.

Furthermore, the partnership said it will continuously monitor Zenith's actions, particularly the possibility that it may sell its consumer electronics group, which has had flat sales since 1983.

The Brookhurst group also said it might possibly "make a proposal with respect to a business combination with Zenith" at some future date. The partnership began acquiring Zenith stock in March.

For the past three years, Zenith has reported a decline in income and a decline in earnings per share. In 1987, the company had sales of $2.3 billion and losses of $19.1 million, or 78 cents per share.

Gateway ties into SNADS

BY PATRICIA KEEFE
CW STAFF

SAN LEANDRO, Calif. — A software gateway said to use IBM's Systems Network Architecture Distribution Services (SNADS) protocol is now available to link Conetic Systems, Inc.'s Higgins electronic mail package with major host office systems, such as IBM's Distributed Office Support System (Disoss).

Called Softswitch SNADS Gateway/Higgins, the gateway features an LU6.2 interface.

The products were co-developed by Conetic and Softswitch, Inc. in Wayne, Pa., using the Higgins Mail applications programming interface, which was announced in October 1987. With availability slated for the end of this month, pricing starts at $5,000 to support a minimum of three local-area networks.

Higgins is an integrated office system consisting of E-mail, scheduling and project tracking functions for work groups on LANs. Softswitch is a supplier of mainframe gateway products.

The strong presence of IBM's SNA within major corporations has resulted in increasing use of SNADS to link E-mail packages, prompting Conetic to add SNADS to Higgins, according to Marketing Vice-President Howard Case.

Hence what appears to be a burgeoning trend among mail packages adding SNADS support. Two weeks ago, Emissary Systems Ltd. in Toronto unveiled a mail package built on the SNADS protocol.

Within an SNA environment, SNADS performs the delivery functions of an E-mail network. SNADS Gateway/Higgins reportedly will translate messages, documents and files from Disoss or Softswitch-supported mail systems into formats that can be read by Higgins and vice versa. By converting one system's name service to another, the gateway avoids extra overhead when sending mail between systems.

The next generation of desktop computing will take us from being gatherers of data to being cultivators of information.

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ETA supers to get AT&T Unix

BY J. A. SAVAGE
CW STAFF

SAN FRANCISCO — In a dual effort to increase buyer appeal for its supercomputers and to throw its welterweight behind AT&T's Unix — which is now being rivaled by the Open Software Foundation (OSF) — ETA Systems, Inc. announced last week that AT&T's Unix operating system would be available late this year on its entire line of supercomputers.

St. Paul, Minn.-based ETA's primary competition, Cray Research, Inc., flew to its own defense in the supercomputer world against young upstart ETA.

Based on AT&T's Unix System V, Release 3, ETA's System V will have 40 applications by the end of the year, according to the company. However, at three beta-test sites at which ETA's System V is currently being tested, there are only six applications.

ETA chose to base its operating system on the earlier Release 3 instead of Release 4 because "we don't feel like being a guinea pig" for the latest release, said Chris Torkileson, manager of ETA's Unix group.

Backing AT&T's Unix as an industry standard, Torkileson called the rival Unix organization, OSF, which is backed by IBM and Digital Equipment Corp., "divisive."

ETA's supercomputers range from a 375 million floating-point operations per second system for $850,000 to a 10.6 billion floating-point operations per second system priced at $25 million. The latter supercomputer is currently in the production stages. The low end is air-cooled, and the high end requires liquid nitrogen.

ETA is "a profound underdog" in the supercomputing market, according to company President Carl Ledbetter. By offering a native Unix operating system, the company aims to enter shops that formerly had to spend long periods of time porting an application to a proprietary operating system.

Supercomputer users will be able to develop applications on standard Unix workstations and then compile and run the applications on the supercomputers, according to Ledbetter.

He directly referred to long-established supercomputer manufacturer Cray, pointing out that although it has a Unix operating system, it is a proprietary one with kernels of AT&T's and the University of California at Berkeley's Unix.

On the defensive

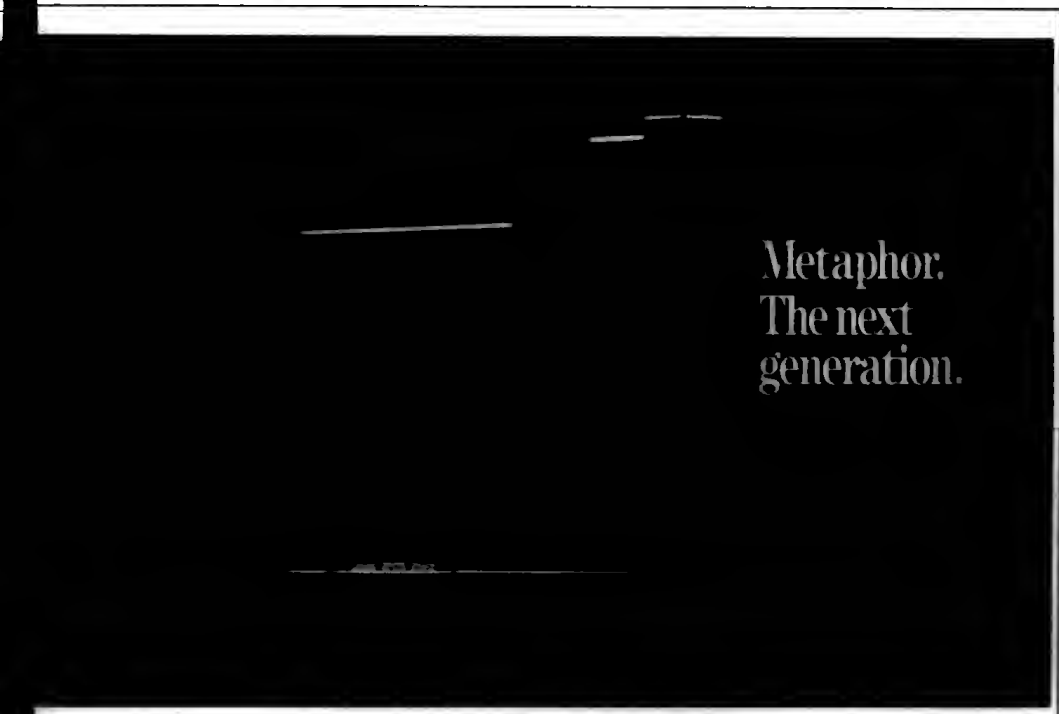
Cray immediately ran to its own defense, claiming that its Unix operating system, Unicos, performs "better than pure Unix," according to John Swenson, a Cray spokesman.

ETA's Ledbetter also said that although Cray has 300 supercomputers installed, "fewer than 20 run [Unicos]." Cray is unaccustomed to such direct competition in the intense number-crunching area of the scientific world. "That's a gross lie. We have 40 systems, and there will be 50 by the end of the year," Swenson shot back.

ETA has installed 11 supercomputers in its one year of operation and said it expects to install 29 more by the end of this year — 80% of which will run Unix. A subsidiary of Control Data Corp., ETA has shown $100 million in sales this year.

"ETA is CDC's new shining star," said Bonnie Digrius, an analyst at Cupertino, Calif.-based Infocorp. "A couple of years ago, CDC had several quarters in the red — this could be one of its saving graces. Still, it's hard to think that a division that brings in $100 million a year can support a $3 billion company."

The announcement was made amid Unix-mania at the Usenix Association Summer Conference here last week, at which ETA set up its lowest end supercomputer running with several different Unix workstations.



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Oracle airs OLTP benchmarks

BY NELL MARGOLIS
CW STAFF

BELMONT, Calif. — Oracle Corp. is taking its customers for a ride.

Last week, the company set a date — July 18 — for the long-awaited, much-postponed official announcement of the on-line transaction processing (OLTP) version of its Oracle relational data base and also named the place for the announcement: aboard the British Airways Concorde.

The 100 customers, industry analysts and members of the press who are slated to take off on the Mach 2 charter flight next month will receive either the published audit report or an in-person verification from the auditor of what Oracle already claims will be impressive benchmarks for the new system, according to Vice-President of Marketing Peter Tierney.

Benchmarks on several machines, Tierney claimed, are yielding numbers likely to propel Oracle to the front ranks of the OLTP race now in progress among the several leading relational data base players. Running the TP1 benchmark on a large, IBM MVS-based Amdahl Corp. mainframe, he said, the Oracle OLTP-strength data base, provisionally dubbed TPS, logged approximately 200 transaction/sec.

Moreover, Tierney said, a TP1 benchmark of TPS on a Digital Equipment Corp. VAX 8800 yielded more than 36 transaction/sec. — the highest transaction rate yet demonstrated on a VAX platform, according to Oracle.

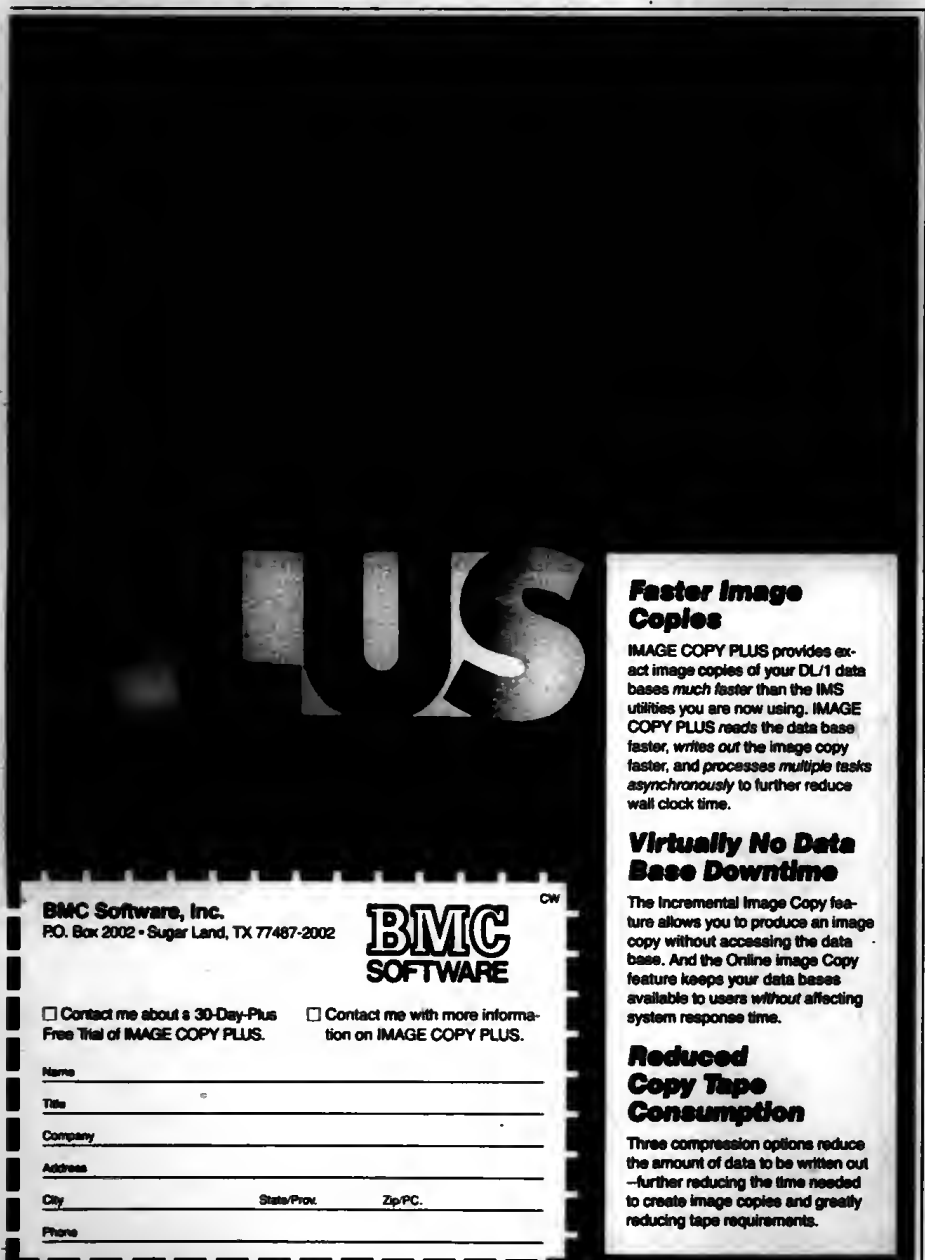
Start your engines

"This is going to be Oracle's response to Relational Technology and Sybase," said Robert Anderson, an analyst at Sutro & Co. in San Francisco. Both Relational Technology, Inc. and Sybase, Inc. have fielded recent OLTP data base offerings, claiming breakthrough benchmark performances. Cullinet Software, Inc., newly arrived in the relational data base market in April, also entered with benchmark flags flying.

However, Anderson noted, these arch-competitors "are benchmarking on different platforms, in different configurations, using different benchmarks."

In addition, Anderson said, the benchmark confusion, if not intentional, is nonetheless welcomed by the competing companies because it is impossible to designate a winner.

Delays that have bounced the announcement from a fourth-quarter 1987 original target date to late June to late July, Tierney said, resulted from a panoply of factors, including Oracle's underestimation of the time it would take to build OLTP muscle into a relational data base management system.



HP price cuts pit Vectras, PS/2s

BY KATHY CHIN LEONG
CW STAFF

PALO ALTO, Calif. — Hewlett-Packard Co. said it will reduce prices Friday on its HP Vectra ES and HP Vectra RS personal computers by up to 18%. The move pits HP squarely against IBM in price/performance for the Personal System/2 line.

HP's move came three weeks after IBM dropped the prices of its existing PS/2 Model 60s and 80s. Two weeks ago, Compaq Computer Corp. cut the price tag of its Intel Corp. 80286-based Deskpro 286 Model 40 by $300 to make way for its new systems. No other major microcomputer vendors have followed in IBM's or Compaq's footsteps; Tandy Corp. and Dell Computer Corp. said they do not plan to drop prices.

Because of the dynamic random-access memory chip shortage, most vendors have been forced to drive prices up. Last month, Wyse Technology said it would increase its PC prices by 6%, and Apple Computer, Inc. raised the prices of its memory expansion kits [CW, May 16].

Temperature rises, prices drop

The new HP pricing scheme affects 13 Vectra models, which include Intel 80386- and 80286-based machines. "We had been anticipating that IBM would be dropping its prices for the summer time frame," said Bill Johnson, HP's group manager for PC products. "We thought Compaq would be dropping prices on more machines, but they didn't, so that puts us in a better competitive position."

According to Johnson, the company is able to offer lower prices because HP's PC sales have doubled during the past year. HP's manufacturing costs have dropped since volume has skyrocketed.

Although chip prices are going up, HP has offset those increases by hiking memory board costs on its Vectra ES and RS lines, Johnson added.

The 386-based HP Vectra RS/20 Model 300 has dropped in price from $11,995 to $10,495. The Model 300 is now $1,500 less than the PS/2 Model 80-3100. The HP Vectra ES/12 Model 46, now at $3,995, costs the same as the PS/2 Model 50 but has 10 more megabytes of drive capacity.

West Coast senior correspondent Julie Pitta contributed to this report.

Flurry of MHS deals

As the spotlight dimmed on its Netware SQL rollout, Novell, Inc. announced the enlistment of 13 independent developers — including Ashton-Tate Corp., British Telecom and Wordperfect Corp. — that said they will incorporate the store-and-forward technology of Novell's Netware Message Handling Service (MHS) into their software.

Also unveiled was an agreement with British Telecom to develop an X.400 electronic messaging technology for Netware.

Novell is trying to position the MHS set of application programming interfaces, which it jointly developed with Action Technologies, Inc., as a standard for message handling between local-area networks.

Other firms participating in the alliance will include Action Technologies, Inc., Alcom, Inc., CC:Mail, Inc., Comtic Systems, Inc., Compuserve, Inc., Infomix Software, Inc., Network Technology, Inc., Pinnacle Publishing, Inc., Quarterdeck Office Systems and Softswitch, Inc.

Netware MHS is available free with Netware Versions 2.1 and higher. Other Netware customers will be charged $100 per file server. MHS for DOS stand-alone machines, Microsoft Corp.'s Networks and Banyan Systems, Inc.'s Virtual Networking Software, or Vines, network operating system, is available from Action Technologies or Novell for $100.

Under [illegible] agreement with British Telecom, [illegible] MHS with [illegible] an electronic-mail software program based on the X.400 standard. The move marks Novell's first commitment to ISO Open Systems Interconnect standards.

JAMES DALY

Novell fires up SQL engine

Optimized for Netware, tool gains instant vendor support

BY JAMES DALY
CW STAFF

NEW YORK — Novell, Inc. finally took the mystery out of its anticipated SQL data base strategy last week, unveiling an SQL engine optimized for its Netware network operating system.

The Provo, Utah-based vendor also announced immediate product support from a half-dozen front-end developers — including Lotus Development Corp. and Borland International — that promised to support the Netware SQL data base management product as a back end to their business applications.

Netware SQL builds on the technology of Btrieve — a record manager developed by Novell subsidiary Softcraft, Inc. — and provides Novell with a needed entry into the rapidly expanding SQL market.

Dual function

The offering counters SQL server capabilities offered by IBM and the tandem of Microsoft Corp., Sybase, Inc. and Ashton-Tate Corp. and also lays down a welcome mat for SQL developers.

"Applications are continually being developed to send messages or requests to an SQL back end or server, so we need to provide that capability in the operating system," said Nancy Woodward, president of the company's development products division and former president of Softcraft.

Since a back-end engine merely holds data, responds to queries and sends off data, Netware SQL will afford users the opportunity to select the front-end applications — report generation and input generation, for instance — with which they are comfortable, Woodward added.

"It's a strong product that marks an extremely important development in personal computer technology," said Rich Finkelstein, a senior consultant with the Codd & Date Consulting Group. "It's important that Novell has signed up these vendors, because they have guaranteed developers known tools to develop large-scale systems without having to resort to procedural languages."

Added capabilities

Netware SQL will also offer application programming interface support for software developers through the use of XQL, an SQL interface for standard languages such as Basic, C, Cobol and Pascal introduced by Softcraft last year. Previous versions of Btrieve lacked these SQL capabilities.

Netware SQL will be moving into a ready-made market via Novell's large installed base. Dataquest, Inc. has estimated 50% of the personal computer local-area network market to be in Novell's court, and the company boasts more than 220,000 operating systems installed worldwide.

The initial release of Netware SQL will support DOS and OS/2 environments; future releases will extend Netware SQL support to other Netware environments. Netware SQL is set to be available in the fourth quarter as a Netware option and will be priced at $595 per server.

Looking to swap your IBM PC for a racier model?

BY ALAN J. RYAN
CW STAFF

Users of IBM Personal Computers will receive the option of trading them in toward the purchase of Personal System/2s beginning Friday.

Through the program, sponsored by IBM, dealers have been authorized to buy back PCs, PC XTs and ATs, PC Portables and PCjrs. The dealer will decide how much to allow the customer for the unit, and prices will likely range from $100 to $1,000, according to IBM spokesman Scott Brooks. IBM has set maximum prices in each category of computer.

Dealers will then have the option of selling the used computers at whatever price they choose, Brooks said. Dealers will also be able to send the machine back to IBM, with IBM picking up all handling and freight charges. The machines must be in working condition.

"We expect the larger number will be kept by dealers for resale," Brooks said. Machines returned to IBM will be resold to other dealers or to used computer brokers, Brooks said. "We will not sell them to end users," he added.

Brooks said the trade-in program is convenient for those who wish to upgrade but that some people will find they can get a better price for their used equipment by selling it on their own. He added that for some firms, particularly those that cannot easily sell equipment because they are publicly held, the trade-in might provide a workable alternative while allowing the purchase of new equipment.

The promotion is scheduled to run through Aug. 31.

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EDITORIAL

At last

IT WAS THE BEST of times, it was the worst of times....

Indeed, it was the tale of two companies: one that tried to lead its customers with bluster and another that determined where its customers wanted to go and figured out how best to get them there.

But both companies are part of a larger company, in fact, part of the largest computer firm in the world: IBM.

The worst of times for this giant was undoubtedly the negative backlash to its 9370 line, a series of processors designed to bring the 370 architecture to the mid-range level. If this line had been positioned as a downward extension of the 4381 family — a low-cost subset of IBM's mainframe array — the world by now would probably view it as moderately successful.

Unfortunately for the company — and analysts and publications that swallowed the hook — the immediate need at IBM was to counter the success of DEC's VAX family and the erosion of the mid-range prowess that had been built up by successful IBM minicomputers.

So IBM fired a marketing broadside to position the 9370 as the answer to everyone's prayers. It was to be a great distributed processor, an easy-to-install stand-alone host and departmental machine that could meet any end user's needs. And, of course, it was not to be. The system has found its place in niche applications and as a development station for 370 architecture programming, but it simply could not make the 370 accessible to the nontechnological masses that today's corporation has to automate.

Now comes the best of times. IBM has apparently done its homework well in bringing out the AS/400 line, the so-called Silverlake project.

The company has seemingly pulled off what most people thought it incapable of or disinclined to do: It has brought the incompatible System/36 and 38 processors into a wedded architecture that, by all appearances, will be allowed to grow into a viable alternative to the 370. It has suited the office environment characteristics of the System/36 to the sophisticated technology of the System/38. It will seemingly allow businesses to build an information processing hierarchy that requires a minimum of "glass house" support and promises to work hand-in-hand with third parties to provide the general office automation functions they are begging for.

Most important, IBM seems to have taken to heart the key marketing concept of the premier upstart, DEC, by telling its customers they can have it now rather than buying a shell to be filled out later.

Those within IBM intent on providing true applications systems do indeed represent a company apart from those making up the high priesthood of the 370. So long as they accept the need for common meeting grounds, IBM will finally be in a position to offer its customers what works best for them, rather than trying to push growing companies into an architecture designed for highly centralized, tightly controlled operations.

LETTERS TO THE EDITOR

Speaking out on DBMS measurement

I applaud *Computerworld* and William Inmon for tackling the tricky subject of performance comparison. However, in Inmon's "Rating the vendors: Whose DBMS runs the fastest?" [CW, May 9], several pieces of data in the tables appeared to be in error. Since the tables were used to produce charts, the charts were also in error.

My experience with mainframe users suggests that IBM's TPF and Cullinet Software, Inc.'s IDMS/DC data base request rates in those tables were unrealistically high.

Adding transactions per second to data base requests per second, as was done in the charts, does not accurately reflect the true demands on a system's performance. Transactions per second should be weighted over data base requests in this measurement. Also, a distinction should be made between data base accesses, which only involve reads, and the more costly change-oriented accesses — updates.

David W. Dempsey
Manager of Product Marketing
Tandem Computers, Inc.
Cupertino, Calif.

After reading William Inmon's diatribe against set-at-a-time processing and his pseudo-research on data base management system performance, I hope readers balanced his advice with more credible information.

The essence of Inmon's analysis of set-at-a-time processing is: The more records you process, the longer it takes. I think most application developers already realize that point, and we realize it applies to IBM's VSAM and IMS as well as to DB2.

Inmon seemed to miss the point that most sets defined in backbone business applications contain a small number of records and that the power of relational algebra is that it simplifies the developer's statement of what data should be accessed. Whereas a hierarchical or network DBMS requires the developer to define and use explicit navigational links, the relational model lets developers express the same target data based solely on content. In organizations with dynamic application development, applications are not held up while waiting for the DBMS manager to add another link.

Inmon dragged out an old argument against the relational model — the data will not all be in one place on the disk. Of course, it is obvious that the data cannot be clustered for more than one retrieval pattern regardless of the DBMS used. But more important, the relational model does not specify anything about where data is stored: In fact, physical data independence is one of the main principles of the relational model.

Inmon propagated the misconception that DB2 conforms to the relational model. DB2, even Version 2, fails to incorporate several important relational concepts, and the DB2 approach to storage is not relevant to its fidelity to the relational model.

Paul Conte
President
Future Systems Software
Eugene, Ore.

After the publication of my In Depth article, it has been brought to my attention that IBM's IMS Fast Path benchmark did approximately 5,310 data base requests per second at peak period, including terminal I/O, and 2,137 physical I/Os per second at peak period, including terminal I/O.

William Inmon
American Management Systems, Inc.
Lakewood, Colo.

Free market

Concerning the article "When the headhunters call" [CW, May 2], the whole dialogue is an indication of free market system, where we — recruiters, employers and employees — are all working to maximize our utility.

Recruiters are providing required information to both employees and employers and are getting paid for their services. It is the duty of employers to see that priority is given to employee satisfaction in their organization if quality employees want to be maintained.

In the same token, an employee who changes jobs like clothes will not have a good track record to attain a strategic or managerial position in a respectable organization.

Oladipo Omole
Programmer
Peter J. Schmitt, Inc.
Buffalo, N.Y.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor, Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.*

Obstacles to computer progress

Squabbling vendors tie up the industry into a technological square knot

HARVEY NEWQUIST

While exploring emerging technologies, it's easy to overlook the other side of the coin — the obstacles to technological advancement and use. Sometimes we don't see them, even though they're staring at us from the pages of computer magazines. While looking us straight in the eyes, they're shackling technological developments behind our backs.

• **The Unix consortium.** Also known by the misnomer Open Software Foundation (OSF), this is a group of 10 companies that don't like the fact that Unix is in the hands of AT&T and that Sun is sweeping the Unix floor with its competitors.

So these companies have opted to form another Unix camp, thereby creating confusion and giving users migraine headaches for the next couple of years.

Just as the various Unix groups appeared to be headed in a similar direction and started formalising a unified environment for users to work in, the OSF bullies decided to muck things up. Their reason? "We had no choice" was the official reply. No choice? Isn't it a bit suspicious that Apollo — Sun archcompetitor — is at the forefront of this group?

And why are DEC and IBM involved? They care as much about Unix as they do about public domain software.

The fact that OSF was thrown together in about the time it takes to make a three-minute egg is also not very reassuring. Didn't most of these vendors recently agree that data communication standards should be set by the International Standards Organization? How many sides of one mouth can a group of corporations talk out of?

• **Apple vs. Microsoft and Hewlett-Packard.** Apple is obviously stalling for time against the onset of Microsoft's OS/2 Presentation Manager and, in the process, doing everything it can to create hard feelings.

But why is it doing this? Apple has made an incredible return to the mainstream computer business with the Macintosh II on the strength of its marketing. However, as the graphics-oriented competition has heated up, the company brought in its legal beagles. Nothing fouls up a good marketing company like lawyers, and this case will be no exception.

When is Xerox going to get into the act and shut down all of this nonsense for good? Anyone who saw the original Xerox Star terminal knows where that nice screen interface originated, anyway. Now customers face the option of buying IBM Personal System/2s with no appealing screen interface.

• **Lotus.** How long can you keep customers on a string by baiting them with the next big technological development and leave them hanging with nothing to show for it? The company ought to introduce products under the "new and improved Vaporware Series."

Lotus has very quietly dropped its software protection policy, which required buyers to promise almost everything — excluding pounds of flesh — to avoid persecution from the 1-2-3 shock troops. Now, for a mere $15, you can buy a utility that eliminates the peaky copy protection feature.

Lotus has barely mentioned this software it sells, after all these years of belittling users for stealing so much money from the company coffers. Maybe Jim Manzi's recently publicised personal earnings of $26 million last year helped him to forgive the software pirates.

• **IBM vs. clone makers.** IBM's actions are almost like entrapment, to my mind. It's very much like letting a family pet sleep on the living room sofa for two years and then, without warning, whacking it for being there in the first place.

Ultimately, any fines meted out by IBM are not going to come directly from the offending companies' pockets. Clone makers will just price their products higher. Apparently IBM isn't content with the market chaos stirred up by its PS/2.

• **Virusses.** Anyone who puts a virus on a piece of software, a bulletin board or any other publicly accessible computer component should be held accountable by any user whose system is disrupted.

Putting a virus on software is wrong; they are an invasion of property and privacy. As such, perpetrators should be dealt with in a manner similar to those who are guilty of breaking and entering.

Well, there they are — today's newsmakers who have thwarted the advancement of technology in our business and home lives.

If so many companies weren't so concerned with beating each others' brains in and focused instead on serving the marketplace, there naturally would be more computers and software installed and, thus, more active buyers to be sold to.

The current guerrilla infighting is doing nothing to help anyone — except maybe the lawyers.

If Shakespeare were alive today, he might be tempted to change his famous line from "Kill all the lawyers" to "Kill all the computer vendors who are causing needless distress in the computer marketplace. . . . Then kill all the lawyers."

BOB DAEMMRICH

IF SO MANY companies weren't so concerned with beating each others' brains in, there naturally would be more computers and software installed and, thus, more active buyers to be sold to.

Newquist writes and consults on artificial intelligence and other advanced high-technology topics from his office in Scottsdale, Ariz.

The latest essential: The text processor

JOHN BARNES

I don't know about other people who review software, but for me, there's no bigger excitement than discovering a solution in search of a problem; that is, a new product that does new things without much indication of what, if anything, these new things might be good for.

These products stretch the reviewer, tend to be where some of the best programming talent works and, most of all, often point the way the industry is heading.

When several companies enter the field at the same time with similar solutions in search of a problem, chances are you're looking at a genuine frontier.

In the last few months, I've seen several new products called text processors that do about the same thing. I venture a prediction: Text processors, like data bases, word processors and spreadsheets, will emerge as essential tools for much of the user population within five to 10 years.

What does a text processor do? It takes text documents or sets of documents and performs various user-specified search algorithms for keywords. It reports out an index in forms that range from structured outlines to screens full of excerpts, showing where the thing searched for occurs in the document or set of documents.

Most text processors also allow you to save search specifications and their results and to mark the document in some fashion that preserves the information created by the search — for example, by highlighting keywords.

If you find it strange to talk about a search procedure creating information, then you've just run up against some of the really astonishing potential that is implicit in text processors.

The wonder machine

The selling of text processors reflects earlier software revolutions. Word processors started out as "typing on your computer" and spreadsheets as "an easy-to-use programming language for business."

Within a few years, we were hearing of the word processor as "adding a third dimension to the writing process," "multiplying the capabilities of your mind manyfold" and "the greatest change in written communication since the alphabet."

The spreadsheet suddenly

Continued on page 22

Barnes is the Pacific Northwest area manager for ADG, a high-tech marketing organization based in San Pedro, Calif. His second novel is *Sin of Origin*, published by Congdon & Weed.

How can pollution cops fight without the proper arms?

J. A. SAVAGE

Northern California's pollution cops, the San Francisco Bay Regional Water Quality Control Board, can't track pollution caused by Silicon Valley computer companies because the agency cannot get enough computers.

It is such a problem for the agency's engineers who monitor hazardous waste cleanup efforts that a couple of the targeted companies even offered them PCs. Government-employed engineers had to reluctantly decline on their lawyers' advice.

The engineers aren't looking for anything fancy. They don't need to crunch numbers; they just need to process words for the myriad reports necessary in the monitoring process. The state expects the engineers to write reports out longhand and then give them to a typist.

Lawrence Kolb, principal engineer in the Water Quality agency, has crusaded for five years to get his 60 engineers PCs. But the lumbering bureaucracy still resists him. "The state has the view that engineers shouldn't type," he says.

In the meantime, 25 engineers, including Kolb, have spent their own money for computers. "I argued with my wife about giving up carpeting the stairway to buy a computer," Kolb says. The stairs lost out to an IBM Personal Computer AT-compatible clone.

Part of the problem lies in sexual stereotypes in state management. In an essay he wrote to bureaucrats, Kolb cites "categorical opposition by the State

Continued on page 22

Savage is a *Computerworld* West Coast correspondent.

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The essential

CONTINUED FROM PAGE 19

became "the basic tool for failure-proof business decisions," "the machine-equivalent to a roomful of MBAs" and "a new, essential extension of the human brain." These quotes are all drawn from computer journalism — not from ads.

The truth, most of us finally discovered, was that although word processing and spreadsheets were not magical, they were something much more than a computerized version of something familiar. They really did change the way people worked, even if they didn't eliminate work itself.

Right now, many see text processors as just an extension of the familiar search process, with the addition of "fuzzy searching" — looking for words that share roots with the specified keywords — logical operators — keywords ANDed, ORed and NOTed together — and hierarchical indexing — outline structures: In other words, a search function that can be told to do more. The difference is this: To use the search feature of an ordinary word processor effectively, you must know what is in the document, approximately where it is and what its context is.

In looking for an exact text you know is in the file, a search procedure uses what you already know. A text processor finds a way to fit the document you are examining onto a concept you specify. The result of that, which specifies a relation between what you already know and what is in the document, is new knowledge.

Suppose, as a manager or consultant, you wanted to study how the company handles reprimands. You pull the past three years of correspondence on disk and scan it with your text processor, pulling out all written reprimands grouped in such categories as reductions (search by "bonus" or "promotion," for instance), penalties that might be imposed (fuzzy search on "terminate" and "reassign") and what the employee has been asked to change ("attitude" AND "performance," "attitude" AND NOT "performance" and so forth). What you will get back is the structure you had in mind, imposed on the raw information. You can quickly see how well your mental picture fits what is in the raw documents.

Do managers more commonly threaten termination for attitude problems than for failure to perform? When they talk about performance do they have specific complaints? And how many threats of whatever kind do they follow through on for what offenses?

Shortcut

In the responses to these questions, you get the answer to the most important one: Is my idea of what is going on here supported by the data?

Following an ordinary paper trail, you would have to read through a dozen fat file folders. Using a search procedure, you would sort through the documents individually. It might take weeks to construct the same information. Or, you might never construct it at all. Chances are you would jump to some conclusion just to have an answer on time.

The text processor is the gateway to much more effective reading, reading as we've never known it before, in the same way the word processor gave us better editing and the spreadsheet gave us better "what-if" estimating.

The potential user of text processing is anyone who needs to test generalizations about large masses of unorganized written material. Investigative reporters looking through government documents, research physicians looking at clinical case histories, lawyers looking for precedents, secretaries who have to find a 5-year-old letter in three minutes — they are all possible users.

But the word processor did not lead to better writing or the spreadsheet to better calculating, per se. In the same way, someone still has to have the concept to fit with the information, and people with better concepts will do better work.

That, in fact, is the real strength of the text processor: If you have a good concept of what is really going on in a body of text, it makes the rewards bigger and delivers them faster.

In an age in which other computer tools are making it easier for more people to bombard us with text, it's an idea whose time has come.

Pollution cops

CONTINUED FROM PAGE 19

Office of Information Technology to microcomputer use by technical staffs in report preparation."

Kolb has tried to insert PCs into the annual budget. He says he has offered to hold down salaries in return for computers. He has tried to cut back on purchasing the sophisticated engineering hardware used in monitoring pollution sites in order to buy PCs. Despite how reasonable his arguments sound, he hasn't been able to convince the bureaucrats.

"Taxpayers should see that the slowness of the state [to respond] is a scandal," he says, brandishing a simple chart showing that the increased efficiency derived from using computers would pay for 10 PCs in one year.

Scandalous, perhaps. At the very least, it is a disgraceful waste of public money when professionals are forced to monitor polluters with pencil and paper while the stench of pollutants fouls California's precious groundwater. I'm sure the polluters will monitor themselves while the state catches up with the paperwork.

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—Software Magazine 1988 Software Market Survey

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31. Dir. Mgr. Supv. of Programming
03. Programmer, Methods Analyst
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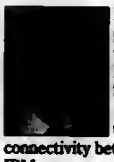
SOFT TALK

Charles Babcock

They linked IBM, DEC



In a June 20 profile on the Savannah River Plant in Aiken, S.C., *Computerworld* cited the high level of connectivity between DEC and IBM processors at the U.S. Department of Energy's nuclear materials processing site.

This was where tying VAXs to mainframes was accomplished at an early date, and it might be worthwhile to review the specific solutions that helped provide these links at a huge federal facility.

The network found its incubation in the need to tie on-line experiments being monitored by laboratory DEC PDP-11s into the experimenters' personal computers. Later, the need arose to tie local-area networks of PCs and VAXs into mainframes, but in both instances, the network's expansion was driven by end-user demand, which eventually was codified and organized into a networking plan for the site and given to the Computer Projects Department to execute.

"We have a manager who accuses us of doing what we know," says Andrew Johnson, the chief technology officer in

Continued on page 28

Nies: a survivor of DBMS wars

Cincom head thrives in tough market, anticipates competing with IBM

Twenty years ago, Cincom Systems, Inc. founder Thomas Nies, 52, was the project manager on one of the first on-line installations of an IBM 360. The experience shifted his attention from hardware to software, and he soon left IBM to found his Cincinnati-based software firm.

Nies still holds a controlling share — *the* controlling share, company insiders say, as if there were no other major investors — an unusual position in a maturing industry and in a company whose revenue is expected to reach $165 million this year. During the firm's 20th anniversary and users group conference recently, Nies paused to speak with *Computerworld* Senior Editor Charles Babcock about some of the changes he has seen as head of a large systems software house.

Cincom's Nies

How do you see Cincom competing with IBM and DB2?

We will deliver a product line [Supra] to the marketplace which, at the top end, is more functional, more efficient, more advanced in design and comes with a broader array of support technologies than IBM's. It will be for the IBM MVS, VM and DOS environments. ... Supra for the DEC VAX will be very close to the IBM product [Supra on the mainframe]. Even if a guy has got IBM tattoos all over his back, we will support him and allow him to move into the interactive world of the VAX.

Why are you able to compete in the mainframe relational data base management system wars when other vendors are backing away?

It's a function of timing. Our vision six years ago was better than those other guys. We made the investments where they had to be made. In 1985, we scooped the industry with the introduction of Supra with IBM endorsing the [relational] approach. The companies that now say they are not counting on data

Continued on page 29

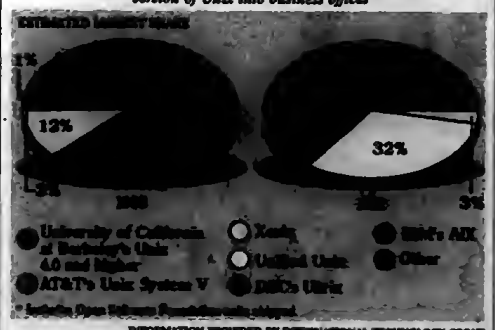
Inside

- Cincom launches CASE alliance. Page 26.
- Intersystems develops SQL-, MUMPS-based data base manager. Page 27.
- Digital Pioneers rolls out Unix version of Easytrack. Page 30.

Data View

AIX leapfrogs other Unix systems

AIX shipments are expected to boom as IBM pushes its proprietary version of Unix into business offices



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Package allows customized monitoring of VMS systems

BY NELL MARGOLIS
CW STAFF

MINNEAPOLIS — A two-pronged tool set aimed at helping system managers monitor integrity, increase security and supply data for performance analysis with regard to Digital Equipment Corp. VAX/VMS systems was introduced recently by Control Data Corp.

Called Proact 1000 and Proact 2000, the two software packages are the opening shots in a planned CDC series of VAX/VMS system management tools. Both will be available next month, the vendor said.

A core group of features that will characterize the Proact series as it emerges, a CDC spokeswoman said, will enable a user to define the standards by which the software itself will monitor the system. Included are programmable thresholds, command procedure activation and an interface to Dectalk that keeps the user abreast of system events as they occur.

In addition to such core features, the spokeswoman said,

Continued on page 26

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Cincom, friends forge CASE alliance

BY NELL MARGOLIS
CW STAFF

CINCINNATI — Cincom Systems, Inc. recently announced a four-way marketing and development alliance that will target commercial as well as scientific and technical users with a cradle-to-grave computer-aided software engineering (CASE) tool set, according to company spokesmen.

Cincom formed the alliance after asking itself what it needed to do to play catch-up in entering the CASE market, said Thomas McLean, vice-president of marketing and product planning.

To attain its goal, Cincom, with offerings spanning relational data base management, manufacturing applications, application development tools, office automation tools and network management software, joined forces with Index Technology Corp., Appleton Co. and Aion Corp.

The announcement marked the second time in two years that Cincom has deployed a "combine and conquer" philosophy to assault a software citadel. In spring 1987, it spearheaded the CIM Alliance, a six-company combination aimed at software for the factory floor.

Cincom spokesman Ronald R. Hank credited that effort's success with a doubling of the company's Digital Equipment Corp. VAX-based revenue in the past fiscal year.

State your CASE

On the CASE front, Cincom is contributing the foundation application development, information management and network management software, prominently including its mainframe Supra relational data base management system and Mantis application development system.

Index Technology, based in Cambridge, Mass., brings its personal computer-based Excelerator front-end CASE planning, analysis and design tools.

Manhattan Beach, Calif.-based Appleton Co. offers planning and implementation methodologies through which the user can identify organization-wide data requirements and business rules, describe the functions in a proposed software system and generate data base design, according to David Schoeff, the company's senior vice-president of marketing and sales. Appleton's application design facility is available on both IBM and DEC platforms.

A strategic thrust toward corporate MIS users, as well as the scientific and technical developers often identified with CASE, was a key reason for drafting Palo Alto, Calif.-based Aion as the fourth ally, Cincom's McLean said. According to an Aion spokeswoman, the firm is one of few companies currently offering expert system-based tools for the development of IBM Personal Computer- and mainframe-based applications.

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VMS systems

FROM PAGE 25

Proact 1000 will use data generated by Decnet and collected, analyzed and documented by the CDC system to provide nonstop monitoring services. Those services will alert the user to incipient hardware deterioration as well as attempts to breach system security.

Proact 2000 allows users to gather information on system performance, memory utilization and I/O and CPU resources on a networkwide basis as well as from the CPU, according to the spokeswoman. In addition, the software can group multiple systems or nodes by department or special interest for reporting purposes.

All Proact packages will be able to serve on a stand-alone basis or with multiple VAXs in either Vaxclusters or networks, according to CDC. The Proact 1000 and 2000 will both be available as enhancements to CDC's VAX/VMS hardware maintenance offering, the vendor added.

System melds MUMPS, SQL

CAMBRIDGE, Mass. — Intersystems Corp. recently released a data base manager and application development system based on two ANSI-standard programming environments, SQL and MUMPS.

M/SQL blends the nonprocedural SQL environment with the procedural MUMPS world, according to Intersystems President Terry Ragon. The software allows users to pick the more appropriate programming approach for a particular application, he said.

An ad hoc query application would be best served by SQL, Ragon said, while a more structured billing application is suited for the MUMPS environment. Users can either program in MUMPS or SQL. They can also embed SQL statements in a MUMPS program, Ragon added.

When they log on to M/SQL, users answer a series of questions describing the data base and can query it in SQL. If they have an existing MUMPS data base, they can map that to the SQL environment and make SQL calls to it, the company added.

The M/SQL package is made up of six components. It is available at no cost to current Intersystems users. For new customers, licenses range in price from $1,500 for small minicomputers to $119,900 for IBM's high-end mainframe.

Two options, M/Windows and a report writer, M/Pact, are available with M/SQL. Prices start at $1,900.

Cincom adds RMC to software line

CINCINNATI — Cincom Systems, Inc. expanded its manufacturing software line to the repetitive manufacturing market earlier this month with the announcement of Repetitive Manufacturing Control (RMC).

RMC will be offered as an optional module to Cincom's Control:Manufacturing software. Cincom said it will be available for the Digital Equipment Corp. VAX platform immediately; versions for the IBM MVS and VSE operating systems are scheduled for release in August.

The new module includes four facilities: Product/Process Definition, Production Schedule Management, Material Pull Support and Simplified Production Reporting.

Product/Process Definition uses Control:Manufacturing's bill of material and routings component to define the product and process used for making all items. Production Schedule Management allows users to identify items that are controlled by discrete work orders and items that are not made for specific orders.

RMC is available immediately and is priced from $20,000 to $80,000.

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BIMSERV — On-line display of library directories and entries, VSAM Catalog entries, disk VTOC's, etc.
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Babcock

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the Computer Projects Department at the site; it is an accusation with which he readily agrees. In some cases, there were no solutions for a problem the group confronted in 1982 or 1983, but one has since emerged in the marketplace and has been incorporated into the network.

Seeking answers

Here are some of the solutions that Johnson and his department chief, Gerald P. Thompson, chose for their network:

Ethernet coaxial cable segments provide the basic network in a given plant area or building. But once the Ethernet LAN was installed, the obstacle between VAXs and PCs had to be overcome. Johnson, who spends about 25% of his time talking to vendors or visiting other sites, reviewed a number of connector products and decided to standardize on PClink from Pacer Software in La Jolla, Calif. PClink allows a PC to emulate a DEC VT100 or VT200 terminal.

The PC may then be tied into the office automation package, DEC's All-In-1, on the VAX. PClink also provides for the creation of soft keys or the assignment of special office automation function to existing keys on the PC that mimic the functionality of All-In-1 on a VT100.

Ethernet provides ties between PCs and VAXs in a given area, but Johnson soon outstripped the 2,800-meter distance limit associated with Ethernet and searched the marketplace for Ethernet extenders.

The answer, he found, was fiber-optic cable repeaters and bridging devices for direct connection of two Ethernets. The bridges have been programmed to listen for messages that are directed to devices on the LAN they connect, and they collect and pass along those messages, Johnson said.

Since the Savannah River Plant maintains much of its operations data on a mainframe copy of Software AG's Adabas, many PC and VAX users wanted access to the host, and Johnson added the following ties to the network:

A terminal's or PC's VT100-style message can be piped through a Decserver 200 terminal server and into an IBM 7171 protocol converter, which translates it into IBM 3270 terminal format. The 3270 emulation can access either the IBM 3081 or 3090 host and issue a call to the data base, downloading the response.

In addition, the Savannah River Plant network has provided for direct file transfer between host and Ethernet nodes by installing an Interlink Computer Sciences gateway, which uses a DEC MicroPDP-11 attached to the Ethernet LAN and a high-speed communications channel to the 3081 host.

File transfers can be initiated from either the VAX or the mainframe at the rate of 100K bit/sec., Johnson says.

Johnson says his initial Ethernet installation in the laboratory of the plant, powered by a VAX-11/750, "had a lot of problems. You put eight users on it and it died." The first effort was a lot like "throwing out the first pancake," he recounts.

Now the definition of an Ethernet has expanded, and there is no area of the 300-square mile Savannah River Plant that the network can't reach, he says.

THE LAB'S INITIAL Ethernet installation "had a lot of problems. You put eight users on it and it died."

ANDREW JOHNSON
SAVANNAH RIVER PLANT

Babcock is *Computerworld's* senior editor, software & services.

Why ADR an
want BST to rem
secret in librar

Most people know BST as the change control specialists. Our competitors would like to keep it that way. Because when you compare library management facilities, theirs just don't measure up to ours. And there's a good reason why.

To effectively implement change control, you first need to manage your source code--not just COBOL card images, but all the components of your applications. This means vendor-supplied code, fourth-generation languages, data base definitions, CASE statements, JCL, parameter libraries as well as all host program languages of any size.

Since traditional source library management systems were designed when card punches and 360s were the latest in technology, they not only can't handle all application components, but they rely upon outdated access and storage methods. So BST built an advanced, unrestricted library management system upon which to base the sophisticated change control technology we're known for. And it's precisely these capabilities our competitors hope you don't discover.

So don't settle for a library manager that handles only a fraction of your needs. Instead, consider an integrated system that is certain to improve project control, vendor application upgrades, programmer productivity, and system integrity. And works with IMS, DB2, IDMS/R, and other DBMSs, 4GLs, and CASE systems.

BST has redefined library management to provide:

- Full management of all source, regardless of size or form, using standard IBM structures and access methods
- Efficient, automatic versioning using sophisticated, space-saving base/delta/comparison technology

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Nies

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base management system revenues are correct. Delivering [a relational mainframe product] in the 1992 to 1993 time frame is a lost cause.

Tremendous resources are being made available to DB2, such as the new ESA operating system. Will you be able to keep up?

We believe we can make the investment in data base because we are not determined to force our product up to the biggest processor. . . . The bigger resources are more expensive resources. ESA was designed for DB2; DB2 was designed for ESA. Bigger may be better for IBM, but smaller is smarter for the customer — more functionality, less equipment. We offered full referential integrity, entity integrity and user-defined integrity. The data base gurus call it three levels of integrity. We're betting more users will operate more rationally and less recklessly. We believe we can give a 6-to-1 cost per transaction benefit over IBM. This is what we must deliver to be competitive.

In what other ways has your company changed to adjust to the marketplace?

We call 1984 to 1988 the transition years, when Cincom went from a small to large software company. The year 1986 was an important one. Revenues were flat but revenues from new product lines grew from 12% to 14% [three years earlier] to over 50%. We moved all resources away from the old product lines. If you visualize us in 1984 as a $25 million company with five products, we have grown to a $130 million company [with the same five products] in 1988. We anticipate total revenues of $165 million to $170 million in 1988 and over $200 million in 1989. We've done this all through internally generated growth. Cincom is not an acquisition-oriented company.

Haven't you been a year or two behind in supplying SQL in your new product line?

We didn't believe we could do well selling a similar system to IBM's. So we implemented a superior language for Supra, Spectra. We are a little premature in appealing to the rational buyers. We've decided to offer SQL support. In effect, we're backing away from a better product. The users can have SQL support — it's imminent — for all IBM environments, the VAX and Unix. One might say we're a little late, but what we have is far superior to what anyone else offers.

Why are we seeing an alliance between DEC, IBM and others to offer an "open software" flavor of Unix?

There was increased aggressiveness on the part of AT&T and Sun Microsystems. IBM and Digital wanted to present an answer to Unix. It's a chess game being played.

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Interfaces tie SAS, VAX

HOUSTON — Software Interfaces, Inc. recently released an upgraded version of a utility that it said links the SAS Institute, Inc. statistical analysis package to three relational data base management systems for the Digital Equipment Corp. VAX platform.

The interfaces, called Ostat, Istat and Rstat, work with DEC's RDB, Oracle Corp.'s Oracle and Relational Technology, Inc.'s Ingres.

They allow bidirectional transfer of data between the SAS environment and the relational DBMS, the company said. A SAS user can extract data from a DBMS while in the SAS environment; knowledge of the SQL language is not required.

The upgraded versions of the interfaces are said to include a method of defining a data dictionary that would help map the characteristics of a DBMS column to a SAS variable. The interfaces range in price from $2,500 to $7,500, depending on the VAX configuration.

A Unix-based on-line transaction processing system has been developed by VI Systems, Inc. To be marketed under the name VIS/TPS, the product is said to provide Unix users with on-line business transaction applications and is capable of supporting distributed hardware configurations.

The program also provides and manages all interfaces between the operating system and the applications and requires Unix System V, Release 2 or above.

The VIS/TPS system on a Unix mainframe costs $50,000.

VI Systems, 11910 Greenville Ave., Dallas, Texas 75243. 214-907-8080.

A series of accounting and distribution packages for Unix-based systems, including NCR Corp.'s NCR Tower and Unisys Corp.'s Unisys 5000 series, have been announced by MCBA, Inc.

The packages include Accounts Payable, Accounts Receivable, General Ledger, Payroll and Inventory Management.

Each will reportedly run in either a stand-alone environment or as part of an integrated system. The software will run on systems based on the Motorola, Inc. 68000 family of microchips.

The vendor said versions for Intel 80386 series-based machines will be available later this year.

The packages cost from $1,500 to $6,000 depending on the package and computer in use.

MCBA, 425 W. Broadway, Glendale, Calif. 91204. 818-242-9600.

Goal Systems International, Inc. has upgraded its security software package for the IBM VM operating system.

Alert/VM 2.03 reportedly eliminates the need to update both the VM directory and the Alert/VM security file when altering individual access authorities or when adding additional users to the system.

Directory management functions include automatic integrity checking, mass update capabilities and on-line changes to the active directory. Alert/VM works on IBM systems with 370 architecture, and the IBM 9370 series under IBM's VM/SP and VM/HPO Release 3 and above.

Alert/VM 2.03 costs $16,500.

Goal Systems, 7965 N. High St., Columbus, Ohio 43235. 800-848-4640.

Languages

Compuserve Data Technologies has released Version 7 of its System 1032, a fourth-generation language and data base management system for Digital Equipment Corp. VAX/VMS environments.

The latest release includes fourth-generation language and screen forms capabilities for application development that reportedly respond to and control end-user activity. An interactive forms editor is also included. First copy licenses for a basic system range from $3,000 for a Vaxstation to $120,000 for a VAX 8800.

Compuserve Data Technologies, 1000 Massachusetts Ave., Cambridge, Mass. 02138. 617-661-9440.

If You Develop Software Applications On IBM,

NEW PRODUCTS

Systems software

A Unix version of the Easytrak project management software system has been announced by Digital Planners, Inc. Previously, Easytrak had operated solely in Digital Equipment Corp.'s VAX/VMS environment.

The product is a full-function multiuser project management system aimed at aerospace and defense contractors, the vendor said. Its facilities include a specialized module for government reporting and a relational data base management system with fourth-generation language capabilities.

Easytrak will reportedly operate on any system running Unix System V.

Easytrak is priced from $30,000, depending on configuration and machine size.

Digital Planners, Suite 800, 4400 MacArthur Blvd., Newport Beach, Calif. 92660. 714-476-1020.

Ranco Rabbit Software has enhanced its Rabbit-2 VMS Know-It-All system management package that runs in Digital Equipment Corp.'s VAX environment.

Version 4.0 reportedly aids in system performance analysis by revealing system load, thereby allowing users to examine and correct bottlenecks and abnormalities. The system also incorporates project allocation reporting, decision confirmation, trend analysis and capacity planning functions.

Rabbit-2 VMS Know-It-All Version 4.0 is priced from $1,995 to $4,995.

Ranco Rabbit, 2440 Research Blvd., Rockville, Md. 20850. 301-258-2620.

Applications packages

CCC/Software, a division of The Computer Consulting Center, Inc., has announced LOTS/36 Release 2, an update of its Loan Origination and Tracking System for the IBM System/36.

The package reportedly allows banks, mortgage brokers and mortgage bankers to market, track and automate documents required for the mortgage loan process. The system includes an enhanced on-line calculator and an integrated IBM Displaywrite/36 word processing interface. Variable loan-tracking steps may be defined by the user.

LOTS/36 Release 2 costs $25,000 for operation on the IBM 5363 and $30,000 for use on the IBM 5360.

CCC/Software, 575 8th Ave., New York, N.Y. 10018. 212-564-9088.

A software package for simulation and verification of numerical control tool paths has been announced by Computer Graphics Technology.

Called Vericut, the product reportedly permits a user to observe the metal removal process on a computer graphics screen as opposed to a milling machine.

The input into the software is a solid model of the stock and a tool path from any computer-aided design and manufacturing vendor. The program will interactively remove stock. Written in C, the software currently runs on Sun Microsystems, Inc. workstations.

Vericut costs $2,995.

Computer Graphics, Suite 310, 22706 Aspan St., El Toro, Calif. 92630. 714-380-8022.

Or VAX,

identification of applications using excess resources and resolution of time-response problems.

Insight/DB2 costs $30,000 in the U.S. A free 30-day evaluation of the product is available.

Database Utility Group, P.O. Box 4129, Federal Way, Wash. 98063. 206-878-1001.

Inset Systems, Inc. has extended its graphics utility packages to include support for Microsoft Corp. and IBM's OS/2.

Highjaak and **Inset**, designed to resolve graphics file compatibility problems and perform compound document creation on the IBM Personal Computer, will now operate under the OS/2 operating system.

Highjaak and Inset for OS/2 cost $99 each. A bundled version of the two packages costs $149.

Inset Systems, 12 Mill Plain Road, Danbury, Conn. 06811. 203-794-0396.

A system-managed storage software for IBM OS/MVS operating systems is now available from **Sterling Software.**

Sterling has bundled its DMS/OS and three of its VAM products together into a system called **Storagepak.** DMS/OS performs archiving, backup, restore and recover, predefined custom reporting and numerous other functions.

Storagepak costs $39,500.

Sterling Software, Systems Software Marketing Division, No. 100, 11050 White Rock Road, Rancho Cordova, Calif. 95670. 916-635-5535.

A program that was developed to generate complete RPG II programs for the IBM System/36 has been announced by **Britz Publishing, Inc.**

Called **RPG/GEN**, the product generates complete RPG II source code for file maintenance programs, the vendor said. The generated code is automatically compiled, and procedure code for running the generated programs is also automatically generated. RPG/GEN is written in RPG II, and complete source code is included.

RPG/GEN costs $199.

Britz, 1814 Capital Towers, Jackson, Miss. 39201. 601-354-8882.

American International Communications Corp. has expanded its Network Navigator series with the addition of Network Navigator-VTAM.

The product reportedly provides a management-oriented store-and-forward file-transfer system that operates as an IBM VTAM application.

A Network Navigator PC can now communicate with the VTAM, TSO or CMS versions of the Navigator product line interchangeably. The systems are compatible with IBM 3270 Personal Computers and other communications environments.

Network Navigator-VTAM costs $30,000 for the host component. Network Navigator PC licenses cost from $195.

American International Communications, 4760 Walnut St., Boulder, Colo. 80301. 303-444-6675.

Or Both,

Progress Software Corp. and **Harris Corp.'s Computer Systems Division** have announced a version of **Progress**, a fourth-generation language and data base management system that will run on the **Harris HCX** series of Unix-based superminicomputers.

The Harris HCX series consists of 32-bit minicomputers designed for throughput applications such as data base management, software development and enhancement, office automation and network processing.

A full application development copy of Progress for the entire Harris HCX family of superminis ranges in price from $30,000.

Harris, Computer Systems Division, 2101 W. Cypress Creek Road, Ft. Lauderdale, Fla. 33309. 305-973-5125.

An IBM ISPF-based system for generating correct MVS JCL code for production or test environments has been announced by **Technical Support Group, Inc.**

Called **J-Base**, the system reportedly allows users to generate jobs from high-level panels. According to the vendor, the system acts as a fourth-generation language for operational information by providing an operations interface for system developers, production operations and end users.

J-Base costs $28,500 in the IBM 3090 environment, less when used on smaller CPUs.

Technical Support Group, Suite 2715, 150 N. Michigan Ave., Chicago, Ill. 60601. 312-781-2800.

Utilities

A productivity tool that reportedly allows application programmers to resolve any CICS transaction dump is now available from **On-Line Software International, Inc.**

Called **Symdump**, the software was designed to complement Intertest, the company's CICS test and debugging program.

Symdump gives applications programmers the option of selecting specified parts of the memory dump for viewing. The program automatically maps dumps symbolically into the source code, permitting users to see the offending statement in context and debug the problem interactively. The system also offers batch printouts of selected dumps and on-line dump file management capabilities.

Symdump costs $6,250 per CPU for Intertest users and $12,500 with a first-time purchase of Intertest.

On-Line Software, Fort Lee Executive Park, 2 Executive Drive, Fort Lee, N.J. 07024. 201-592-0009.

A real-time performance monitor for IBM's DB2 data base management system is now available from **Database Utility Group, Inc.**

Called **Insight/DB2**, the software reportedly can capture and display performance statistics on overall system performance for all of DB2's resource managers. This includes thread connection, buffer management, logging and volume SQL activity. System exception reports provide warning messages when certain thresholds are exceeded.

In addition, the vendor maintains that Insight/DB2 is capable of capturing comprehensive trace data from DB2, which has previously been available only from batch reporting systems. The ability to deliver this data on demand in real-time allows Insight/DB2 to provide a selective trace and summarization facility.

The product's output can be used for

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*SIS (Single Image Software) and SDM (Shared Device Management) are two Duquesne Systems products combined and enhanced to form one new superset product, Multi-image Manager

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Data base management systems

A software system that reportedly allows users of IBM's DB2 to execute batch programs independently of TSO has been announced by **Softbase Systems.**

Called **Database Attach**, the system uses the Call Attach Facility of DB2 to communicate with the data base, thereby eliminating the need for TSO to execute batch functions. The product runs in the IBM MVS/DB2 environment.

Database Attach has an initial license fee of $3,400.

Softbase Systems, 2241 Sagamore Road, Charlotte, N.C. 28209. 704-529-0414.

Intex Solutions, Inc. has introduced **SQL:Verify**, a companion product for IBM's DB2 data base management system.

SQL:Verify is for MVS environments and reportedly allows users to check an entire data base or specific subset to verify data consistency and record accuracy. The program can also validate business rules and will run in both interactive and batch modes.

The software is distributed on a nine-track 1,600 bit/in. tape.

License fees for SQL:Verify range from $2,200 to $5,500 per month, depending on which IBM group is used, according to the vendor.

Intex Solutions, 568 Washington St., Wellesley, Mass. 02181. 617-431-1063.

A family of automated data base conversion tools for porting Ashton Tate Corp.'s Dbase III Plus and compatible files to fourth-generation language environments such as IBM's DB2 has been announced by **Cygnus Research, Inc.**

DB-SQL Bridge reportedly offers user control over the entire conversion process via pull-down menus. The software generates portable SQL code for microcomputer-, minicomputer- and mainframe-based applications.

System requirements include an IBM Personal Computer, PC XT, PC AT, Personal System/2 and most compatibles, 640K bytes of random-access memory and a 10M-byte or greater fixed disk.

Microsoft Corp. MS-DOS or IBM PC-DOS 2.1 or higher is also necessary to run the system.

DB-SQL Bridge has a price tag of $495.

Cygnus Research, 8 Belmar Ave., Oceanport, N.J. 07757. 201-229-1301.

Development tools

A requirements management facility for Digital Equipment Corp. VAX/VMS systems has been announced by **Nastec Corp.**

Called **Rtrace**, the product is said to be especially suited for the U.S. Department of Defense STD 2167A. It also operates with any life cycle methodology currently found in government, civilian or private-industry development. The Rtrace data base offers cluster support, and users can enter requirement documents on the system via optical character recognition, data entry or magnetic tape. The product can maintain several separate projects simultaneously.

Rtrace costs $30,000 for a single copy.

Nastec, 24681 Northwestern Highway, Southfield, Mich. 48075. 313-353-3300.

A combination programming language and software development environment for building expert systems has been announced by **Symbolics, Inc.**

Called **Joshua**, the product is said to offer full LISP capabilities embedded in an artificial intelligence development environment. Rule-based programs reportedly run in Joshua at more than 200 rule/sec. The software was designed to run on all Symbolics processors and has networking capabilities to most mainstream computing platforms.

Joshua costs $15,000 for a single-CPU site license and $60,000 for a subnet license.

Symbolics, 11 Cambridge Center, Cambridge, Mass. 02142. 617-621-7500.

A front-end computer-aided software engineering tool that functions as a structure chart editor is available from **James Barry Software, Inc.**

Arrange is personal computer-based menu-driven software that reportedly automates the creation, maintenance and display of structure charts. Each chart can contain up to 768 boxes, and colors are used to identify subsystems or common functions. Charts can be printed on a line printer in various scales and in all box, line and box-text positions.

Arrange costs $1,495.

James Barry Software, 1212 N.W. 6th St., Grants Pass, Ore. 97526. 503-474-3888.

Integrated Software Systems, Inc. has announced a computer-aided software engineering (CASE) workbench that reportedly combines automatic code generation, simulation and a graphics environment to achieve design, prototyping and simulation of real-time embedded systems.

Called **Autocode**, the product's automatic source-code generator develops lines of code from block diagram specifications, and the graphic programming environment is consistent with Ward/Mellor and Hatley/Boeing real-time design methodologies.

Autocode costs from $29,000.

Integrated Software Systems, 2500 Mission College Blvd., Santa Clara, Calif. 95054. 408-980-1500.

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MICROCOMPUTING

MICRO BITS

Douglas Barney

Fussin' and feudin'

Let the squabbling commence! Ashton-Tate and Oracle probably never liked each other. Sure, they're competitors — they aren't supposed to. But there seems to be something else that makes them really grate on each other's nerves.

Things heated up recently when Oracle announced an Ashton-Tate Dbase clone that includes an Oracle engine and talked to other Oracle data base management system products. The words flew from both sides, and it wasn't pretty.

Gene Shklar, who heads up marketing for Oracle's microcomputer products, started some of it. Shklar had a few choice words for SQL Server, developed by Sybase and Microsoft and set to be distributed through retailers by Ashton-Tate. For starters, unlike Oracle, SQL Server is not expected to access mainframe data dynamically. Instead, the data must be downloaded, worked with and uploaded, Shklar claimed.

He also claimed that users may have difficulty when they outgrow a single SQL Server due to PC storage limitations.

Continued on page 41

Migration woes for Excel users

Most porting easy, but switching complex macros from 1-2-3 impossible

BY DOUGLAS BARNEY
CW STAFF

REDMOND, Wash. — Users switching from Lotus Development Corp.'s 1-2-3 to Microsoft Corp.'s Excel for the PC have reported no problems moving over work sheets and formulas. But some with complicated macros have learned that many simply do not translate.

Work sheets themselves are apparently a piece of cake. "The 1-2-3 work sheet translation function worked well. Dollars, cents and formulas all moved over with no problem," said Frank Diasparra, vice-president of technology services at Fidelity Investments in Boston.

Macros, however, are another story. Although Microsoft has called the macro translator 90% compatible with 1-2-3, the firm never expected Excel to work with all macros, said Pete Higgins, group product manager for spreadsheets at Microsoft.

Higgins emphasized, however that he has heard of very few cases in which there have been problems with the translator.

Microsoft advertisements still pitch 1-2-3 macro compatibility. One of the latest ads touts Excel's ability to produce high-quality spreadsheets and charts and to "do all this with files and macros created in Lotus 1-2-3."

Just make sure the macros do not do command-line editing, in which the macro edits a formula, or use self-modifying code — the two approaches that baffle the translator.

"The Excel conversion utility doesn't like what we do with macros," commented G. Jeffrey Knepper, director of advanced technology-tax at Touche Ross & Co.

For users with complex macros, Excel will translate what it can. When it cannot translate a portion of the macros, "we leave those commands in italics so users can go back later and fix them," Higgins explained.

Some don't give a hoot about translation. "The Excel macro language provides more capability," said Jim Collinsworth, a manager in the advanced computer-audit techniques group at Arthur Andersen & Co.

Microsoft, HP shrug off Apple suit

BY STEPHEN JONES
CW STAFF

PALO ALTO, Calif. — Microsoft Corp. and Hewlett-Packard Co. thumbed their collective nose at Apple Computer, Inc. last week, announcing that Microsoft's Excel spreadsheet will be tailored to run under HP's New Wave operating environment.

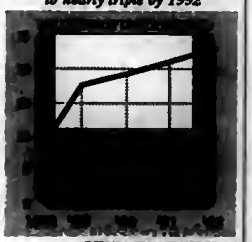
New Wave is currently at the heart of an ongoing legal battle in which Apple alleges that both Microsoft and HP infringed on copyrighted Macintosh technology. New Wave is based on the

Continued on page 43

Data View

Disk shipments drive upward

The market for 3-1/2 in. hard and floppy disk drives is projected to nearly triple by 1992



INFORMATION PROVIDED BY VENTURE DEVELOPMENT CORP.
CW CHART

Mac II passes entrance exam at Carnegie-Mellon

BY ALAN J. RYAN
CW STAFF

PITTSBURGH — Chalk up another convert to the Macintosh II.

Carnegie-Mellon University said last week that Apple Computer, Inc.'s big-ticket, high-resolution workstation will be one of two standard personal computers used on campus. The university said it expects to choose IBM as its other standard vendor.

Additionally, the university and Apple set up a joint development effort that will enable the Macintosh II to run applications developed for Carnegie-Mellon's Unix-based environment, called Andrew. A large body of Unix software developed at Carnegie-Mellon will be converted to run on the Mac II.

Initially, the Macintosh IIs will be used in the university's College of Humanities and Social Sciences beginning in the fall. The computers will be installed in clusters for student use, and the college will also provide systems for faculty members. Macintosh-based academic software will be introduced in many of the college's core courses. Students and faculty will then be able to share information and communicate with each other on the campuswide network.

"For several years, we have

Continued on page 42

Inside

- Intel enters on new 80452X chip. Page 37.
- Chris upgrades Macdraw. Page 38.
- Ogivar rolls out 286-based portable. Page 44.

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SMALL TALK

Mort Rosenthal

Info centers' time to shine

If you're an information center manager, it's time to make some tough choices about what you should be doing now, 12 months from now and beyond.

As companies try to become more efficient, some are severely constraining the personnel resources in the information center, largely because these functions are viewed as overhead. You've got to decide whether you want to be simply an overhead function — just helping people use their personal computers — or play a more value-added role, enabling people to integrate PCs into mainline business functions.

It's no secret that the dreaded backlog you face in dealing with everyday problems can be hazardous to your reputation. Little things like printer support can kill you in terms of resources, and they add almost no intrinsic value to your organization. When you personally handle that kind of support, it's almost impossible to investigate or develop new applications — the PC-based order-entry system for your boss, the industrial distributor or the PC- and mainframe-based cash management systems for your boss, the banker.

These more critical functions can potentially give your company the edge over your

Continued on page 39

Intel execs hold forth on 386SX chip's impact on vendors, 286 and 386 markets

Intel Corp. has finally unveiled the low-cost version of its 80386 microprocessor, which is popularly tagged the "P9," in a move it hopes will popularize 386 computing for a broader range of users. The 386SX, which is the chip's proper name, will reportedly uphold the software growth path available to 386 users — but in a system priced closer to 80286-based micros. The 386SX is a 32-bit microprocessor, like the 80386, but uses the less expensive 16-bit external data bus, as does the 286.

Market reaction has been swift. Compaq Computer Corp. and NCR Corp. have already announced systems based on the 386SX, and IBM is reported to be readying a Personal System/2 with the chip by year's end.

Claude Leglise, marketing

Leglise *sees big things in little chip's future*

manager of Intel's Microcomputer Division in Santa Clara, Calif., and Bruce Schechter, 386SX product manager, recently talked with *Computerworld* West Coast correspondent James A. Martin about how the 386SX and systems built around it will be positioned in the microcomputer market.

Why did Intel develop another 80386 chip?

Leglise: The 386 has been successful in the high end of the office PC market and in the low end of the workstation market. The idea behind the new product is to bring 32-bit software capability to the mid-range PC business. The fundamental thought is that there are good pieces of 32-bit software available and a lot more coming. So we wanted to make it possible to build PCs that would essentially offer a different price point yet execute all the 386 code.

What are the trade-offs, then, to the user who has a 386SX system?

Schechter: From a software execution standpoint, the 386SX runs all the same software as the 386. But the 386SX will only be 16 MHz, whereas we have 386 chips that go up to 25 MHz now. So there will be some performance trade-offs, but at a lower price point.

Will there only be a 16-MHz 386SX?

Schechter: For the foreseeable future, that is correct. I can't comment on what will happen later.

How will the 386SX affect the 80286 and 80386 markets? Will it take away from the 286 and force prices down? Or will it have a greater impact on the 386 market?

Schechter: There is a new generation of software being developed for the 386, and there are people in the mid-range PC mar-

Continued on page 41

A DBMS for the masses

BY STEPHEN JONES
CW STAFF

SCOTTS VALLEY, Calif. — Borland International's Paradox is earning a niche as a kind of working man's data base management system — easy to use but without a lot of frills.

The DBMS has spawned a handful of versions tailored to specific environments, but each of the programs has one important common link: a user interface believed to be friendlier than most.

Users consistently cite the interface as the most compelling reason to buy the product. It relies on a Query-by-Example access method that does not require complicated programming.

Since it acquired Paradox developer Ansa Software in Belmont, Calif., last year, Borland has tried to leverage the user in-

Continued on page 42

Paradox

Price: Paradox 386: $895
Paradox 2.0: $725
Paradox OS/2: $725

- Query-by-Example access method
- Multiuser viewing, editing, querying of tables at same time
- Automatic table and record locking

Hanes takes a run at laptop switch

BY JULIE PITTA
CW STAFF

WINSTON-SALEM, N.C. — The Hanes Co.'s hosiery sales force will soon trade order books for laptop computers.

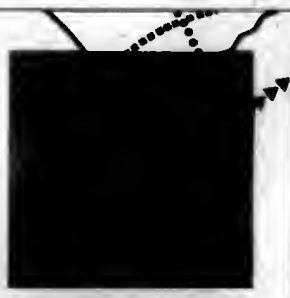
During the next several months, 185 of the company's nearly 300 sales agents will receive Grid Systems Corp. 1520 laptops.

Replacing antiquated terminals with portable systems and appropriate software amounts to nearly a $1.2 million project for Hanes. Despite the cost, Steve Jolley, MIS systems manager for Hanes' field sales, said it is a must for remaining competitive.

"It will allow us to get orders in-house quicker and get the merchandise out to our retailers faster," Jolley said. "We keep our retailers in supply and don't lose sales because they are out of supply."

The laptops will include an Intel Corp. 80286 microprocessor, a 20M-byte hard disk, a 1.44M-byte floppy disk, a 2,400 bit/sec. modem and a backlit LCD. Hardware costs make up two-thirds of the $1.2 million that the company will pay for the project, with software accounting for the rest.

Continued on page 38



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Claris effort gains steam; upgraded Macdraw ships

BY JULIE PITTA
CW STAFF

MOUNTAIN VIEW, Calif. — Claris Corp., Apple Computer, Inc.'s software subsidiary, recently began shipping an upgraded version of its Macdraw package for Apple's Macintosh.

Macdraw II is currently available through authorized Apple dealers at a price of $395. Current users can upgrade for $100. The product is based on new code. It adds object and text rotation, increased speed and color capabilities and is targeted at business users, graphic artists, desktop publishers, engineers and architects.

Recently, The Associated Press said it intends to standardize on Macdraw II to create the graphics it sends to its news service subscribers.

Macdraw is one of four packages Apple created for the Macintosh. When it was formed slightly more than one year ago, Claris inherited those products, which it has opted to update and repackage under the Claris label.

Treading carefully

Software developers had become sensitive to Apple's participation in their market. Apple officials reasoned that the formation of Claris would remove the Apple logo from the marketplace — and the criticism that Apple had an unfair advantage in selling Mac software — without forcing Apple to abandon its software business.

APPLE'S DECISION to spin off its applications software business was the result of criticism from its third-party software developers.

First on Claris's agenda was the upgrade of Apple's software products, which account for $50 million in yearly sales. Macdraw II is the last of the existing Mac software packages to ship. Macwrite Release 5.0, Macpaint 2.0 and Macproject II all began shipping earlier this year.

Earlier this year, Claris introduced its first software products, Smartform Designer and Smartform.

Apple's decision to spin off its applications software business was the result of criticism it received from its third-party software developers. Much of Apple's success with the Macintosh II and Macintosh SE personal computers has been attributed to support from third-party developers, which have created a wide variety of products for those two platforms.

Hanes

CONTINUED FROM PAGE 37

Among the applications to which the sales force will have access are order entry, account information and general office tasks.

The works

With a Grid laptop, each sales representative will receive Lotus Development Corp.'s 1-2-3 spreadsheet, a Micropro International Corp. Easy Extra word processing package and Salesmate, a customized sales package from Waltham, Mass.-based Envoy Systems Corp.

Salesmate includes a personal secretary with a calendar and a phone directory, a sales file for notes on current and prospective accounts and an order entry function.

It also includes terminal emulation capabilities so that sales personnel can access an IBM mainframe at Hanes's Winston-Salem headquarters, an inquiry function that allows sales representatives to request information from the home office in batch mode and electronic mail.

Two of Hanes's leading competitors have begun similar projects; Jockey and Round-the-Clock are both currently pilot-testing systems using laptop computers. After a brief trial run with selected sales offices, Grid systems and accompanying software will be sent to Hanes's four regional and 20 district sales offices.

Long time coming

Hanes spent four years considering the investment and during that time evaluated almost every laptop computer on the market before making a decision last fall. "We were really waiting for the hardware to get to the right place," Jolley said. "Up until recently, screen quality was bad, the weight was too heavy, there was no hard-disk capability, and prices were high."

Among the systems to receive heavy consideration were laptops from Zenith Data Systems and Toshiba America, Inc. While Zenith boasted the best screen, Grid won because it offered a 2,400 bit/sec. modem and was lighter.

"There's no one machine that's the perfect solution," Jolley said. "You have to pick that compromise."

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Rosenthal

CONTINUED FROM PAGE 37

competition but not if you're weighted down by the anchor of today's problems.

Information center managers and micro support personnel are uniquely qualified to make a difference in a company: You know the business of your company, you know the computing environment of your company, and you can significantly add value by helping users develop systems they need in order to be more competitive.

What all this really boils down to is playing a role in the development of strategic applications. Now don't panic; I know you probably think of this as something like a black hole to pour resources into, one that takes too much work and time. But ultimately, someone's got to help users develop applications, and it stands to reason that it will be the information center manager.

If you turn users away, someone else in the organization is going to step up to the plate, and they are going to become very important.

As an info center manager, you must strive to achieve an understanding of your users' problems and help them better understand and define their applications. You have to provide users with the tools they need to develop applications and do a certain amount of hand-holding.

The good news is that new tools are emerging that enable you to build applications that are proprietary to your business.

Just look at the spreadsheet market. One of the big areas of competition these days is the ability to do applications development on a spreadsheet and then back-end the spreadsheet into other corporate data.

You've got to use your knowledge and the tools available to be the facilitator in getting the applications developed. This does not mean you have to do the applications development, but you do have to direct traffic to internal or external resources that can make it happen.

The information center has also got to take the lead in monitoring critical emerging technology. There's a lot of excitement on the horizon for PCs with new operating environments that make it possible to tie them into the total MIS organization as a friendly front end to corporate data.

Lead, don't follow

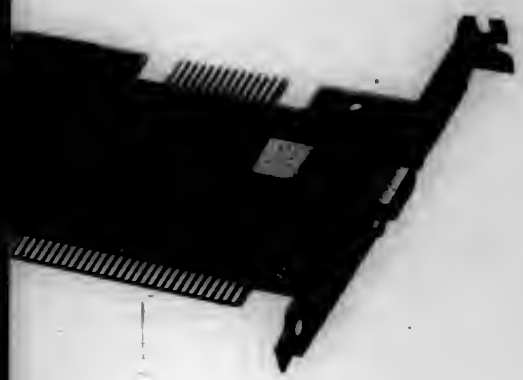
All of this is great, but in order to make it happen, you've got to take the lead in understanding and implementing new technology without taking a huge risk. And unfortunately, today's problems aren't going away. You also need to become more efficient in delivering support today, so you can rise to the challenge and help users develop their systems for tomorrow.

When it comes to support — probably the most mundane aspect of your job today — ask everybody you come into contact with on the outside what resources they have to help you better support your end users. Whenever you realize that a task does not add value internally — if it doesn't require that unique understanding of the company's business that you have — you have to figure out whether you should be doing it at all or delegating it to an external resource.

And remember, you're not being asked to solve all the problems of the corporation — just to orchestrate the solutions. You have a unique understanding of computing and of the company's business. Focus on things that address that combination.

Rosenthal is chairman and chief executive officer of Corporate Software, Inc., a value-added reseller of software and peripherals based in Westwood, Mass.

less.



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NCR to offer 386SX micros

DAYTON, Ohio — NCR Corp. last week became the second personal computer maker to announce plans to offer board- and system-level products based on Intel Corp.'s newly introduced 386SX microprocessor.

The 386SX, which reduces costs by using the Intel 80386's 32-bit internal instruction set but only a 16-bit external data bus, was introduced two weeks ago and was immediately adopted by Compaq Computer Corp. for a line of new micros. NCR is one of a small group of manufacturers receiving the 32-bit 386SX chips.

NCR said it will ship a 386SX processor board with 1M byte of memory on an IBM Personal Computer AT-size plug-in card. Systems with NCR'S 386SX processor board will be compatible with 386-based software and operating systems, including Microsoft Corp.'s MS-DOS, Microsoft and IBM's OS/2 and Unix, NCR company said. The products will be available later this year, the company added.

Because of its split-board architecture, which places the components that would have been on a motherboard on AT-sized cards, NCR can replace the Intel 80286 board with the 386SX, the firm said.

The 386SX processor board will be offered to NCR customers as an upgrade for its 80286-based PC710 and PC810 personal computers and the 3390 and 3392 workstations. It will also be available as a 386SX processor platform for OEMs and systems integrators. The board will cost $1,595.

Middlesex, England... The Government has announced that 40,000 additional men will be needed by the Royal Air Force—most of them in the next 18 months—on top of the present strength of 70,000. Pictured here is a line of smart recruits being transformed into well-drilled, confident soldiers. (Credit: Bettmann)

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Barney

FROM PAGE 35

According to Shklar's claims, multiple SQL Servers on a single local-area network cannot talk to each other and cannot provide key features, such as the ability to join tables from two different servers. Of course, Oracle's products can, Shklar noted.

We're sure Sybase has some words about Oracle, and if the firm gives us a call, we'll be more than glad to relay them.

No longer content to shrug off a barrage of cheap shots, Ashton-Tate took off its gloves and threw a flurry Oracle'a way. Roy Folk, executive vice-president at Ashton-Tate, called Oracle's Dbase clone, licensed from Wordtech, "not fully compatible" and characterized the product as "old and tired." He also said that Oracle's embrace of the Dbase language is both a repudiation of Oracle's "one size fits all" strategy and an acknowledgement that Dbase is the PC DBMS king.

As if that weren't enough, Folk tossed in a bit of skepticism that Oracle can get the product, which transparently translates Dbase into SQL, to market in a timely fashion. Folk pointed out some tough technical hurdles that his firm has come to grips with — and that Oracle must also overcome.

King is in charge. Canning the Modern Jazz software project for Apple's Macintosh must have been a bitter pill for Lotus, and particularly for that development team, to swallow. But something good may well come out of the bad.

Killing a product that could have been completed, and that impressed many, is the epitome of bold decision making. "It may work, it may be great, but it just don't fit in with more important goals," is the theory, and Senior Vice-President for Software Frank King was the theorist.

Some may disagree with King. Others may see a product doomed to failure anyway — and early euthanasia as the painless way out. But there are those within Lotus who see it simply as Frank King being in charge, doing what is best for Lotus without waffling and without making excuses. And that, they say, is just what the company needs if it is to ship an array of important and interrelated products that will form the next generation of Lotus software.

Quattro bugs squashed. Recently, an item appeared in this space discussing some of the reports of bugs in Borland's Quattro spreadsheet that were scaring away some squeamish customers. We looked into the problem and found that customers were worrying about what was essentialy a small problem in the world of software. We reported, based on interviews with users and a software reseller's support chief, that there were some minor bugs, but no more than in comparably equipped products.

At the same time, we reported the responses of two different Borland officials: One said emphatically that the problems were already solved, and another said that the fixes had been made and will ship in the next release.

That item prompted a quick status report from Borland. According to the officials, Quattro bugs have been fixed and are available as work-arounds on Compuserve — and are also on the way in the next release. If that doesn't suit you, you can call and get them from Borland. As far as Borland and this column are concerned, Borland bugs are basically dead.

Barney is a *Computerworld* senior editor, microcomputing.

Intel

FROM PAGE 37

ket, the 286 users, who don't have access to that software — Windows 386, Unix System V/386, etc. We want to provide those customers with what they are interested in. So I don't think the 386SX will have much effect on the 386 market. We expect the 286 to continue to grow for two or three more years.

Then will it affect the 8086 market?

Leglise: Bill Lowe at IBM said he expected his entire product line to move to the 386 in the not-too-distant future and that the PS/2 Model 25 and 30 would move to the 286. I think there'a a trend there.

Why is the chip called the 386SX when everyone called it the P9 before it was announced?

Leglise: We'd rather not confuse anyone with that mythical product. We never had a product named the P9, and we never will. There is no ongoing project called the P9 at Intel.

Will the 386SX encourage or discourage software developers in writing to the 386 chip?

Schechter: Software developers are more encouraged to write for a chip when there is a large installed base, and the 386SX will contribute to a drastic increase in the 386 32-bit architecture. Whatever software they write for the 386, it will be transparent on the 386SX, so this is simply an encouragement for them to write to the 386, period.

What kind of firm commitments do you have from vendors for the 386SX?

Schechter: About 50 vendors are commited to the design now. I can't name them, though. We have already begun production shipments to several trendsetting customers, and it won't be long before you can go into a computer store and see a system based on the 386SX.

What is the life span of the 386, and when can we expect the 486?

Leglise: The expectation is that the 386 architecture will be around for some time.

As for the 486, it will be the same architecture as the 386, and it won't make that much difference to the software development community. If you like the 386 software, you'll like the 486. It should be out by 1990.

DBMS

FROM PAGE 37

terface to lure away users of Ashton-Tate Corp.'s industry-leading Dbase III Plus. Dbase's rather stark interface has often been a sore point among end users who have had to develop some programming expertise in order to write the lines of command code needed to fetch chunks of data.

Changing minds

Borland's strategy has worked with some users. Marketing Performance Innovation, a Marina Del Rey, Calif., firm that manages United Airlines' Frequent Flyer program, is one Dbase defector.

Marketing Performance's MIS group determined that it could spend less time training and supporting end users by switching to Paradox. The firm uses both Paradox 2.0 and Paradox 386.

"With a bit of training, users were able to generate ad hoc reports and queries without the need for MIS. It took a big load off of us," said Brett Morris, manager of the firm's information center. "Users can do a lot of things by themselves that they wouldn't have had a chance at doing with Dbase."

Morris said Paradox also surpassed Dbase in its ability to display tables and join files.

A unit of Yoplait USA was also attracted to Paradox because of the interface. The company's warehouse in Carson, Calif., needed an inventory control system that users could operate while piloting a crane that retrieves and stores orders on 1,400 high-rise palettes.

Meeting needs

"We needed a system that had minimal keystrokes and was very user-friendly," said Wayne Clive, manager of operations control at the warehouse. "I don't have any computer background, but I haven't had any problems working with Paradox."

Clive said it takes less than six hours to fully train a user on Paradox, with little follow-up needed.

The Yoplait warehouse currently uses Paradox 2.0, but Clive said he will soon move to Paradox 386 to take advantage of that product's speed enhancements. "It takes seven to nine seconds to store something now, but I want it done in two seconds," he said.

Clive said Paradox 2.0 will crash if the program runs for hours on end without interruption. After keeping Paradox up for 72 hours, the system shut off and Yoplait lost 27M bytes of hard-disk storage. When Clive asked Borland for help, the company told him the only way to avoid further crashes was to turn off Paradox for about 10 seconds every eight hours.

While Paradox has found its way into the hearts of some Dbase users, market research shows that the program has a long way to go before it poses much of a threat to Ashton-Tate. In the short term, its biggest battles may be fought with the likes of Microrim, Inc., Dataease International, Inc. and Information Builders, Inc., all of which beat out Borland last year in total revenue share of the $282 million stand-alone Microsoft Corp. MS-DOS data base market.

Dataquest, Inc., a San Jose, Calif., market research firm, estimated that Borland finished a distant sixth in total data base revenues for 1987, with just 3% of the market.

Borland said those figures will increase as Paradox is aimed more intensely at Fortune 1,000 companies. With more of corporate America running high-end personal computers, Borland is releasing upgrades such as Paradox 386 to take advantage of specific high-performance platforms. The most recent entry is Paradox OS/2, an enhanced version of Paradox 2.0 designed to take advantage of IBM OS/2 Standard Edition 1.0's multitasking and increased memory capabilities.

Image problem?

But the product's blue-collar image could slow its placement on some companies' listings for preferred industry-standard products. Another potential drawback is the program's Paradox Application Language, which some expert developers have characterized as being low-level and limited.

Borland is hoping to carry the popularity of the Paradox interface over to advanced versions of the OS/2 operating system in the future, even though the look of the program is guaranteed to change in the graphics-based Presentation Manager environment.

But that does not mean the company will lose its friendly interface edge. Richard Schwartz, Borland's vice-president of data base technologies, said the Presentation Manager version of the product will have full data compatibility and an interface "as familiar as possible for previous Paradox users."

Mac

FROM PAGE 35

been looking for personal computers which we can recommend students and faculty to buy," said William Arms, vice-president for academic services at the university.

The transition to standardize PCs at Carnegie-Mellon will extend over two academic years. During the 1988-'89 year, the College of Humanities and Social Sciences will install approximately 120 Mac IIs for faculty and student use in laboratories and classrooms. Faculty will be encouraged to develop course-related computing materials.

"Our goal is to make computers as integral to our academic mission as textbooks are today," said Stephen Fienberg, dean of humanities and social sciences.

Fienberg said the Macintosh II "provides a rich environment for working with sophisticated graphics technologies — including computer animation, interactive video disks and" compact disk/read-only memory.

For the Unix project, dubbed Macmach, Apple will provide the financial support; Carnegie-Mellon will develop Macmach and make it available to other universities free of charge.

If you're trying to make your LANs run real-time communications to your mainframe, the solution is RabbitGATE.™ Because the brains behind RabbitGATE—an on-board intelligent processor—does all of the communications processing. This means it runs the gateway software without dedicating the PC as a gateway server.

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VP-Planner gets upgrade

Paperback forges ahead despite Lotus suit

BERKELEY, Calif. — Pending copyright litigation by Lotus Development Corp. has not stopped Paperback Software International from moving ahead with an upgrade of its VP-Planner Plus spreadsheet.

The company released VP-Planner Version 2, a package it has openly promoted as being 100% compatible with Lotus's 1-2-3. That kind of similarity has proved too close for Lotus, which has a suit pending against Paperback alleging that VP-Planner is a blatant copycat of 1-2-3's "look and feel."

VP-Planner Version 2 retains the controversial user interface but improves on the core package by employing a "background priority recalculation" feature that allows users to enter new commands and entries as the program crunches a recalculation in the background.

The upgrade includes an incremental Undo/Redo capability that reportedly allows users to back out of changes made to a work sheet and to reverse incorrect commands. The program's import capabilities have been enhanced to include a file-import parse command that allows data from fixed-field ASCII files — including data base and mainframe data — to be read directly into a work sheet.

The spreadsheet runs on IBM Personal Computers and compatibles and requires a minimum of 384K bytes of random-access memory. VP-Planner also allows users to create external macro libraries and record keystrokes into a disk file that can be executed to recreate the same sequence into another work sheet.

The package sells for $179.95, with an upgrade price of $30 for registered users of VP-Planner Plus Version 1.

Microsoft, HP

FROM PAGE 35

Windows 2.0 technology that Apple claims Microsoft illegally took from the Mac.

Apparently that does not bother Microsoft, which has consistently said that the Apple lawsuit will not interfere with the company's application development plans. While a Microsoft representative would not comment on future New Wave developments, the Excel announcement is expected to open the door for additional New Wave ports of Microsoft applications.

The new Excel program will be designed to give users access to New Wave's object-management facilities and an "agent" facility that automates system-wide tasks.

With the object-management facility, users can develop permanent links between Excel and other applications running under New Wave, the firms said. Compound documents can be created by merging pieces, or objects, of Excel data with objects of information from other applications in the New Wave system.

Microsoft said the modifications needed to run with New Wave will be folded into the standard Excel product. A special version will not be required.

The New Wave enhancements will be integrated into a standard update of Excel and reportedly will be available in mid-1989. The two companies said they will also tie New Wave into future Excel versions for OS/2 Presentation Manager.

Microsoft program to include all

BY STEPHEN JONES
CW STAFF

REDMOND, Wash. — Microsoft Corp. plans to launch an electronic product support system designed to have something for everyone — from professional software developers to low-end personal users.

The program should help Microsoft stay cozy with an ever-expanding customer base that is demanding more technical support, service and information concerning a variety of products and development tools.

Independent software vendors, professional developers and OEMs can get answers to programming questions by using Microsoft Online, a fee-based electronic support service that allows users to ask Microsoft engineers questions and receive answers via electronic mail. With access to the system, users can share information on an electronic bulletin board, download files from a software support library and tap into a data base containing answers to other users' questions.

The program is set to start July 1 and to cost $495 for 12 hours of access, with each additional hour priced at $25. The fee includes a subscription to "Microsoft Systems Journal," the company's technical newsletter.

Microsoft has also teamed up with the GE Network for Information Exchange (GENIE) personal computer information service to offer end users support and technical advice on retail products.

In addition to standard telephone support, GENIE subscribers can take part in a "Roundtable" bulletin board that lists product announcements, press releases and user notes on such programs as Microsoft's Excel, Word and Works. The board allows users to communicate with each other by posting questions and concerns for public view.

As an enrollment incentive, users can dial up the GENIE service for six months without paying the standard $29.95 sign-up fee. Service charges during prime-time hours are $35 per hour each for the Roundtable and data base. The service is slated to be available in August.

Brains and baud.

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NEW PRODUCTS

Systems

Ogivar Technologies, Inc. of Canada has introduced its second-generation Intel Corp. 80286-based portable microcomputer system.

The **286 Portable** reportedly has a processing speed of 12 MHz and will operate in Microsoft Corp. MS-DOS and OS/2 environments.

The unit comes standard with a 40M-byte hard disk drive, a 720K-byte 3½-in. floppy disk drive and 640K bytes of random-access memory on the motherboard. A 10-in. diagonal IBM Enhanced Graphics Adapter (EGA)-compatible gas plasma screen offers 640- by 400-pixel resolution. An external EGA color monitor may be connected. The computer weighs 14 pounds and measures 13 by 14 by 4 in.

The 286 Portable costs $4,995.

Ogivar Technologies, 7200 Route Transcanadienne, Ville Saint-Laurent, Quebec. H4T 1A3. 800-361-3694.

Amlan, Inc. has expanded its line of portable computers with the announcement of the **Microscribe 700 series.** The units reportedly weigh 3½ lbs and were specifically designed for operation in harsh environments or remote locations.

An outgrowth of the Microscribe 600 series of handheld computers, the systems feature a full 80 col. by eight lines of display windowing on a 24-line page and up to 1M byte of random-access memory.

Also included are twin communications ports for RS-232 and serial devices that enable information to be downloaded at rates up to 9.6K bit/sec. The units run under Digital Research, Inc.'s CP/M operating system.

The Microscribe 700 series costs from $2,875.

Amlan, 97 Thornwood Road, Stamford, Conn. 06903. 203-322-1913.

A 1-lb. handheld microcomputer that reportedly combines a 16-bit microprocessor and as much as 1M byte of random-access memory storage has been introduced by Tekton Corp.

Called the **PTC-720,** the battery-powered unit includes a two-line by 16-char. backlit display with adjustable contrast. It has a variety of options, including a 45-key, no-shift alphanumeric keyboard, pencil wand or laser scanner and two-way communications. The micro will also interface with Tekton impact printers, including the IP-24, a single-copy unit that attaches to the PTC-720.

The company has also introduced the **PTC-720ES,** a similar unit designed specifically for use in freezers or outdoor environments. The case is said to permit operation in temperatures ranging from subzero to tropical.

The PTC-720 and PTC-720ES are priced from $1,200.

Tekton, 3330 W. Market St., Akron, Ohio. 44313. 800-321-2424.

Software applications packages

Expert-Ease Systems, Inc. has enhanced its intelligent graphics package for IBM Personal Computer ATs and Intel Corp. 80386 machines.

Called **Easeplus 2.5,** the product includes customizable design, icon graphics, a data base management system and plotting capabilities.

Expert systems and simulation models can be accessed directly from the graphics model for diagnostic testing of complex, integrated electronics systems and equipment configurator programs. Data can be acquired on-line from external data sources.

Easeplus 2.5 costs $685 for a user system and $3,800 for the full-development system.

Expert-Ease Systems, 1301 Shoreway Road, Belmont, Calif. 94002. 415-593-3200.

Bass Institute, Inc., has released a selection of statistical procedures to enhance the existing Bass System.

With **Basestat,** the system provides 25 preprogrammed statistical and manipulation procedures. Cross-tabulation methods include Chisquare, Cramer's V, Fisher's Exact Test, Lambs and others.

The system operates on the IBM Personal Computer, PC XT, AT and clones running IBM PC- or Microsoft Corp. MS-DOS 2.0 or higher, with a minimum of 384K bytes of random-access memory. Site licenses are available.

The Bass System costs $399, with an introductory price of $299 through Aug. 31.

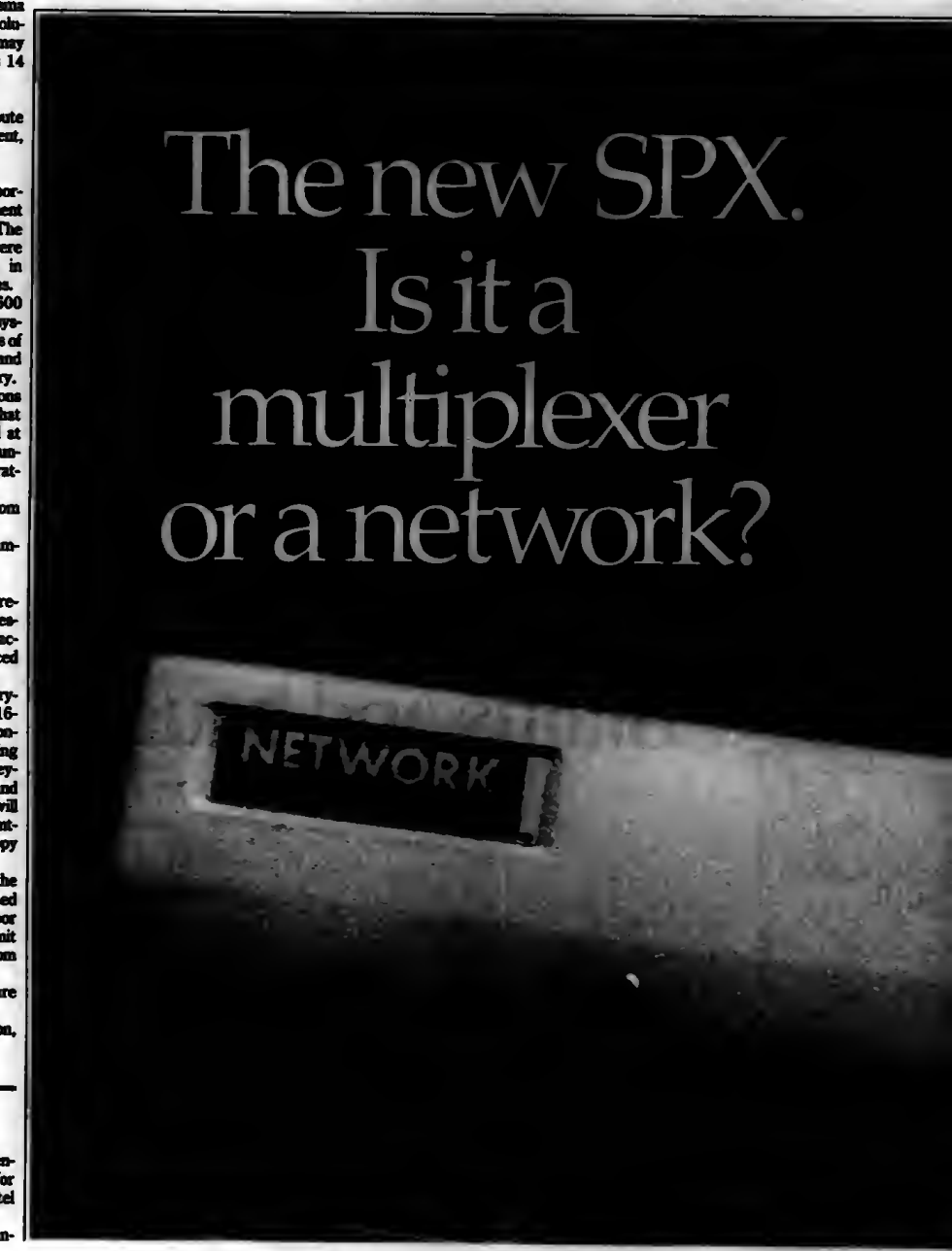
Bass Institute, P.O. Box 394, Chapel Hill, N.C. 27514. 919-489-0729.

Addison-Wesley Publishing Co. has introduced **Wordbench,** a software program initially available for the IBM Personal Computer and compatibles, along with Apple Computer, Inc.'s Apple IIe, IIc and IIGS microcomputers.

Wordbench is structured into six primary components and is geared primarily for business projects, professional writers and students. The IBM PC version requires 256K bytes and one or two 3½-in. drives and operates on IBM PC- or Microsoft Corp. MS-DOS 2.0 or higher. The IBM PC configuration costs $189.

A version for the Apple micro requires a minimum of 128K bytes and is priced at $149.

Addison-Wesley, Reading, Mass. 01867. 617-944-3700.



Paperback Software International has enhanced its spreadsheet software program for IBM Personal Computers and compatibles.

The VP-Planner Plus Version 2 enhancement includes background priority recalculation.

An Autokey Transcript command allows keystrokes to be recorded into a disk file, which can later be executed to repeat command sequences in other worksheets or recover data after power failures. The program requires 384K bytes of random-access memory and Microsoft Corp. MS-DOS 2.0 or higher.

VP-Planner Plus Version 2 costs $30 to registered users of VP-Planner Plus.

Paperback Software, 2830 9th St., Berkeley, Calif. 94710. 415-644-2116.

Industry-standard Wang Laboratories, Inc. VS 2110 terminal emulation and file transfer software for the Apple Computer, Inc. Macintosh is now available from **M/H Group.**

VScom/Macintosh gives full VS 2110 terminal emulation, including quick screen response, access to Wang function keys and support of Wang word processing and graphics characters. The program gives the Mac a local or remote connection to any host Wang VS system. It supports autodialing, macro keys and Digital Equipment Corp. VT100 emulation.

VScom/Macintosh costs $395 for terminal emulation and file transfer and $195 for terminal emulation only.

M/H Group, 222 W. Adams, Chicago, Ill. 60606. 312-443-1222.

A prospect management and sales support software system has been released from **Scherrer Resources, Inc.** Designed for sales professionals, the product reportedly includes a data base manager and word processor and is said to have automatic calling capabilities.

Dubbed **Sales Ally**, the menu-driven package also includes a calendar and calculator and is available in networked or single-user versions. The software runs on IBM Personal Computers and Personal System/2s and compatibles and requires Microsoft Corp. MS-DOS 2.0 or higher and 384K bytes of memory. A Hayes Microcomputer Products, Inc. 1,200 bit/sec. modem is recommended.

Sales Ally costs $395 for the single-user version, and it costs $995 for the networked package.

Scherrer Resources, 8100 Cherokee St., Philadelphia, Pa. 19118. 215-242-8751.

Software languages

Informix Software, Inc. has released Smartware under Xenix System V for microcomputers based on Intel Corp.'s 80386 chip.

Smart for Xenix 386 includes a proprietary application development language and provides bit-mapped graphics support. For Xenix multiuser operation, multiport serial cards are installed on a host computer, which allows personal computers or inexpensive dumb terminals to function as workstations on the system.

Smart for Xenix 386 costs $1,595.

Informix Software, 16011 College Blvd., Lenexa, Kan. 66219. 913-492-3800.

Software utilities

A text storage and retrieval management system developed for retrieval of text and image files has been introduced by **Lanier Business Systems**, a division of **Harris Corp.**

Called **Searchexpress**, the product is part of the Lanier Onestop Solution for document processing applications. It reportedly allows users to search text, image, desktop publishing or computer-aided design and manufacturing files to locate words, phrases or images.

The software runs on Lanier 286 and 386 Onestop personal workstations and IBM and compatible personal computers under Microsoft Corp. MS-DOS 3.2 or higher.

Searchexpress costs $349 for use on a stand-alone PC.

Lanier Business Systems, 1700 Chantilly Drive N.E., Atlanta, Ga. 30324. 404-329-8000.

Development tools

A personal computer local-area network-based fourth-generation language has been introduced by **Applied Data Research, Inc.**

Ideal-Escort Version 1.2 includes an integrated multiuser relational data base management system and an active dictionary with a full-screen multiwindow editor. It was designed for sophisticated applications developers and is not intended as an end-user tool, the vendor said.

Version 1.2 will reportedly allow up to 32 users to be simultaneously logged onto an Ideal-Escort data base in a LAN environment and will also offer IBM OS/2-protected mode support.

Ideal-Escort supports two versions: a development version that costs $1,000 and an execution-only version priced at $195. Both versions are available at quantity discounts.

Applied Data Research, CN-8, Route 206 and Orchard Road, Princeton, N.J. 08543-0008. 201-874-9000.

A software package designed to make the application of artificial intelligence technology easier has been announced by **Gold Hill Computers, Inc.**

Gold Works Axle will reportedly guide a developer through the development cycle by demonstrating four expert systems. The diagnostics applications

Continued on page 46

Yes.

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Continued from page 45

show a sample expert system for manufacturing and a real expert system developed for aerospace.

The system runs on IBM Personal Computer ATs and Personal System/2s, Compaq Computer Corp. machines based on the Intel Corp. 80386 chip and compatibles.

The product will also operate with AI Architects, Inc.'s 386 Hummingboard, a 386-based plug-in board with 24M bytes of memory that was designed for IBM PC XTs and ATs.

Gold Works Axle has a price tag of $1,995.

Gold Hill Computers, 26 Landsdowne St., Cambridge, Mass., 02139. 617-621-3300.

Data storage

Mass Micro Data Systems has announced a drive that can store 44.5M bytes of Macintosh data on removable cartridges.

The **Datapak** drives reportedly have unlimited storage and access times of 16 msec on the Apple Computer, Inc. Macintosh II, 25 msec on the Macintosh SE. Each Datapak includes two small computer systems interface ports and two surge-protected and switched AC outlets.

The Datapak drives are available in six configurations, and pricing starts at $1,775.

Mass Micro, 550 Del Rey Ave., Sunnyvale, Calif. 94086. 408-522-1200.

Printers/Plotters/Peripherals

An autotracking monitor with a 33-in. screen is currently available from **Mitsubishi Electronics America, Inc.**

The **XC-3310** monitor is suited for applications demanding large screen images, including presentation graphics, teleconferencing, computer-aided design and manufacturing and industrial process control. The product has a resolution of 800 by 600 pixels and is compatible with IBM's Video Graphics Array, Enhanced Graphics Adapter and Color Graphics Adapter. The XC-3310 runs on the IBM Personal Computer, XT, AT, Personal System/2 and compatibles and the Apple Computer, Inc. Macintosh II.

The XC-3310 costs $5,495.

Mitsubishi, Computer Peripherals Division, 991 Knox St., Torrance, Calif. 90502. 213-515-3993.

A color monitor for the Apple Computer, Inc. Macintosh II has been announced by **Intecolor**. The **Megatrend/2 20** is designed for training and education, desktop publishing and computer-aided design, manufacturing and engineering applications. It offers 640- by 480-pixel resolution.

The monitor plugs directly into the Macintosh II color video card with an optional pin adapter. It is also available in versions for IBM Personal System/2 and Video Graphics Array systems. The product also includes an autoranging power supply that provides protection from power surges, brownouts and brief power interruptions.

The Megatrend/2 costs $1,995. The Macintosh adapter pin costs $29.

Intecolor, 225 Scientific Drive, Technology Park, Atlanta, Ga. 30092. 404-449-5961.

A video display subsystem that reportedly allows the IBM Personal System/2 to display two full pages of text and graphics on a 20-in. screen is now available from **Ventek Corp.**

The **PS 2000** is said to be Video Graphics Array-compatible and is capable of displaying 1,280 by 1,024 pixels. The system is especially suited for a desktop publishing environment. Drivers are supplied for various software packages, including Microsoft Corp.'s MS Windows and Ventura Publisher.

In addition to the monitor, the system includes a P/2 Micro Channel adapter card, necessary software utilities and drivers and interface cabling.

The PS 2000 costs $2,495 and comes with a six-month warranty.

Ventek, 31336 Via Colinas, Suite 102, Westlake Village, Calif. 91362. 818-991-3868.

Board-level devices

An enhanced version of its document processor for IBM Personal Computer AT and compatibles has been announced by **Kofax Image Products, Inc.** The **KF-8200** occupies a single slot within the system and now offers 4M or 8M bytes of expanded or extended memory. The processor reportedly allows the AT to process engineering drawings and provide higher resolution business documents.

The product is compatible with scanners from Bell & Howell Co., Canon USA, Inc., Fujitsu America, Inc. and Hewlett-Packard Co. The KF-8200 with 4M bytes of memory costs $4,050. The 8M-byte configuration costs $6,700.

An image retrieval engine for IBM PCs running on document image-processing networks has also been announced.

The KF-8500 Image Retrieval Engine is said to be a high-resolution IBM PC display controller with CCITT image decompression capabilities. The product allows networked PC users to retrieve compressed document images from a shared data base for display on their systems. The product consists of a single board that occupies 1½ slots and is compatible with all DOS software.

The KF-8500 costs $1,950.

Kofax, 2691 Richter Ave., Suite 108, Irvine, Calif. 92714. 714-474-1933.

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DATA STREAM

Elisabeth Horwitt

Two SAA questions

While IBM's AS/400 announcement last week may turn out to be hot stuff in the mid-range processor arena, it only disappointed those of us who were hoping for some major breakthroughs in IBM's distributed networking strategy.

IBM surprised no one by announcing that the AS/400, previously code-named Silverlake, will support Distributed Data Management (DDM) and Advanced Peer-to-Peer Networking (APPN), which are key networking protocols for System/36 and, in DDM's case, System/38 as well.

Still up in the air, however, is how — and whether — DDM and APPN will be translated into pivotal components of IBM's distributed networking scheme as defined by its Systems Application Architecture (SAA).

DDM is already officially part of SAA. APPN is not, but like DDM, it is based on SAA peer-to-peer networking protocols, PU2.1 and LU6.2. And both APPN and DDM already contain important functions for distributed networking.

APPN is a group of software elements that allow users to access data and applications across a cluster of networked IBM computers. While APPN is not part of SAA, IBM spokesmen have indicated that some of its

Continued on page 50

Networks connect at PC Expo

DEC nods to IBM, uniting DOS, Ultrix; Novell floats into SQL parade

BY JAMES DALY
CW STAFF

NEW YORK — The big guns of the networking industry peppered last week's PC Expo with major new product salvos, proving just how symbiotic the two industries have become.

One of the biggest communications announcements came from Digital Equipment Corp., which moved toward greater IBM connectivity with a pair of software packages said to integrate DOS-based personal computers and DEC Ultrix-based workstations within the same network.

Decnet users in an Open Systems Interconnect (OSI) environment reportedly will be able to access IBM mainframe-based applications via the Decnet/SNA gateway with the newly released Decnet/SNA MS-DOS 3270 Terminal Emulator or Decnet/SNA Ultrix 3270 Terminal Emulator.

Previously, DOS- or Ultrix-based users were required to access the Decnet-OSI gateway via a log-in to a VAX/VMS system.

The Decnet/SNA MS-DOS 3270 Terminal Emulator is priced at $199, and the Ultrix version is priced from $250 to $3,600, depending on processor type, DEC said.

SQL releases

In a battery of other announcements, Novell, Inc. unveiled its anticipated entry into the SQL data base product parade [CW, May 9]. Netware SQL is a back-end SQL engine tightly integrated with the Netware network operating system.

Novell, along with Oracle Corp. and Excelan, Inc., also announced data base, networking and communications software said to provide distributed data base functionality to local-area networks.

In addition, Novell announced an agreement with British Telecom International to jointly develop CCITT X.400 electronic messaging for Netware. The two firms will integrate Novell's Message Handling Service with British Telecom's PC400, an electronic mail package based on X.400.

Other introductions included the following:

- 3Com Corp. released a pair of Personal Communications Systems (PCS) software packages said to allow 3Com nets to tap into resources on Transmission Control Protocol/Internet Protocol (TCP/IP)- and Xerox Corp. Xerox Network Systems (XNS)-based LANs.

The PCS/XNS and PCS/TCP provide host access via terminal emulation and file transfer services. They are fully compatible with 3Com's current 3+ network operating system and will support 3+ Open, an OS/2-based version of 3+.

Single-user versions of PCS/

Continued on page 53

Data View

Federal telecom budgets stumble and rise

Recent pressure to reduce agency spending is expected to cause a slight dip in expenditures before they move upward

* Projected

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CW CHART

DCA tightens LAN security

BY JAMES DALY
CW STAFF

ALPHARETTA, Ga. — Digital Communications Associates, Inc. (DCA) has tightened the lid on its local-area network security with the release of a software-based system said to tailor information access to the individual user rather than the physical port number.

The User Service Facility (USF) requires users to enter both a user identification and a

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ISDN users get show on the road

BY JAMES DALY
CW STAFF

ATLANTIC CITY — The forces promoting Integrated Services Digital Network (ISDN) rallied recently, as chief proponents of the service ran their flag up the pole at the first ISDN users' workshop while a major ISDN implementation got under way in the Midwest.

Considering that ISDN's chief critics still regard it as a gamble, it was ironic that the four-month-old North American ISDN Users Forum's first workshop convened just steps away from the Showboat Hotel's casino.

The two-day session, which was held as an adjunct to an Association of Data Communications Users, Inc. conference, drew nearly 200 attendees who immediately began the work of standardizing ISDN applications, Chairman Edward Hodgson said.

"We're a user-oriented group, and as such, our mission is very simple: to foster the development of ISDN applications that allow complete interoperability," he said. "And we'd like to do it as fast as possible with as little bureaucracy as possible."

The group said it will also

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- Sinnet releases Q-bus-compatible interfaces. Page 54.

AT&T 605 BCT terminal (left) shown with AT&T PMX/TERM menu. AT&T 630 MTG terminal (right) displays text editing on two hosts, simultaneously.

The secret is the AT&T 600 Series Display Terminal family.

If you've ever been forced to live with two CRTs on your desk just to get the information you need, or have struggled to connect your terminal to a second computer, you'll appreciate the power and simplicity of the AT&T 600 Series Terminals—the first terminals that take full advantage of the UNIX® operating system invented by AT&T.

AT&T 620 MTG terminal (left) supports common business graphics interfaces. AT&T 615 MT (right) is the recommended multitasking UNIX System Administration terminal.

AT&T's windowing technology, built into the 600 Series, provides a seamless link to UNIX System V's multitasking capability and gives the terminals unprecedented windowing power. The result is that one 600 Series Terminal can do the work of several ordinary ones, saving you time, money and space, and improving productivity.

Now you can send data back and forth among PCs, minicomputers, and mainframes in just seconds. You can use the powerful multihost, multitasking windowing system built into the 600 Series Terminals to preview data from up to seven different sources, both local and remote, at the same time. You can run multiple live applications concurrently.

AT&T's terminals allow you to display up to seven windows simultaneously, putting the world truly at your fingertips.

Each window behaves as if it were a stand-alone terminal with its own host connection, and up to seven windows can be displayed per host. Plus you get full bit-mapped graphics, local processing, and a large, easy-to-read screen.

Total UNIX System compatibility.

Most importantly, the windowing and other advanced features of the 600 Series Terminals work instantly with your system software; there's also no need to modify existing applications software. And the 600 Series works seamlessly with AT&T's powerful 6386 WorkGroup System and 3B Computer products.

AT&T 630 MTG terminal. Provides dual-host access and down-loadable applications (left); provides high resolution display of engineering or business graphics (right).

In addition, the AT&T 600 Series Terminals offer full PC terminal capability in the UNIX System environment so you can unleash the power of both UNIX System V and MS-DOS® applications for your remote terminal users.

Whether you're a small business using PCs for order entry and inventory control, or a large company with multiple databases for telemarketing, credit reporting and customer account histories, the 600 Series Terminals from AT&T can help improve your productivity. You can also run a variety of general office applications: word processing, electronic mail and spreadsheets.

The 600 Series is the premier general purpose and software development terminal series for programmers. Since each window is simultaneously active, you can concurrently edit, compile, and debug the same program in separate windows.

To get more information or take a closer look at these terminals, contact your AT&T Account Executive, Authorized AT&T Reseller or call 1 800 247-1212.

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Horwitt

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functions — in particular, a directory that keeps track of files and other resources across a distributed network — are being evaluated as future SAA elements.

DDM's purpose is to "provide data interchange between different kinds of systems," including data management, file exchange and file access, according to IBM's "DDM Implementation Planner's Guide."

DDM is already part of SAA. Ellen Hancock, general manager of IBM's Communications Systems Division, re-emphasized DDM's key role in the vendor's long-term communications strategy at last week's AS/400 announcement.

Narrow path

But the problem is that both DDM and APPN currently implement full functionality only on the System/36 and 38 (and now the AS/400), allowing such machines to access data from and supply it to other IBM systems. A 370 machine can use DDM to supply data but not to request it.

Both APPN and DDM allow IBM Personal Computers and Personal System/2s to request data from another system but do not provide a way for these systems to act as data and application servers on a network. Even IBM admits that writing PC-DOS applications to DDM/PC is difficult, because DDM does not support PC-DOS's byte stream-oriented interface.

DDM is already defined by IBM as an architecture, not a product. Architectures specify how certain functions should be implemented across various IBM — and potentially non-IBM — products. DDM provides blueprints for data access and transport across a distributed network of IBM systems.

But before DDM can fulfill its promise as an SAA architecture, it needs to extend its full functionality and interface support to 370s, PCs and PS/2s and to non-IBM systems.

A likely scenario is that there will be two versions of DDM: a more fully defined, operating system-specific DDM for just System/36s, 38s and AS/400s, and a data stream architecture like the 3270 and IBM's printer stream. This would work across IBM's major computer lines under SAA, according to Frank Daubeck, president of Communications Architects, Inc.

"Under SAA, DDM will define the envelope, the nomenclature and the syntax structures [for transferring data]," Daubeck says. The file transfer mechanism will be handled by other SAA elements such as Enhanced Connectivity Facility as well as by LU6.2 and PU2.1, he says.

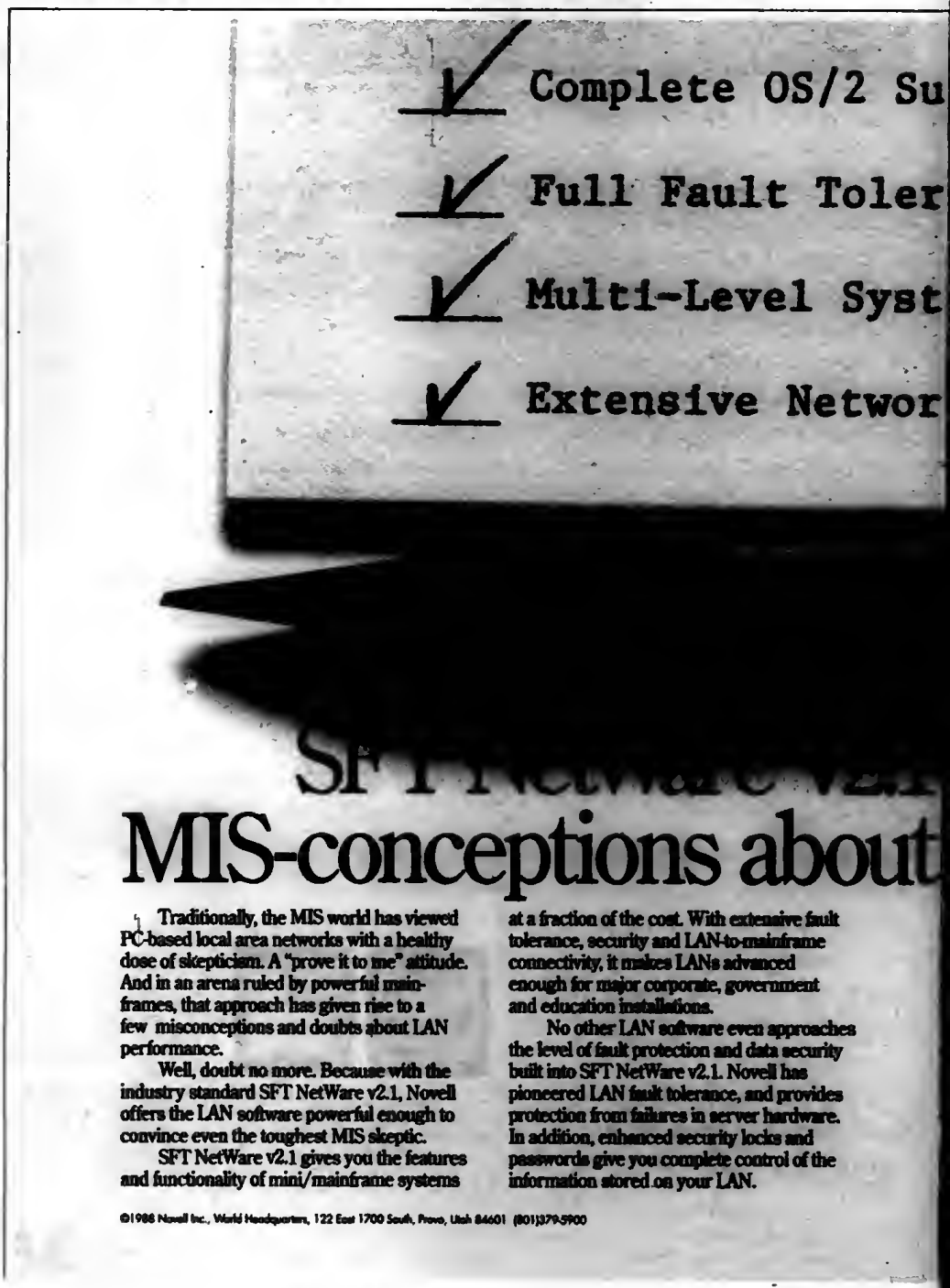
Unfortunately, the fate of DDM and APPN remains in doubt as IBM slowly gets its distributed networking act together. The need for a common directory across all configurations is one of the biggest hurdles to be cleared, according to John Pickens, Communications Solutions, Inc.'s (CSI) senior communications architect. "DDM needs [the directory] to find files, SNADS to find users and APPC to find transactions and programs," Pickens says.

A functional SAA directory — with or without APPN components — that would keep track of distributed networking resources could be years away, IBM sources say.

In the meantime, IBM has found one use for DDM — incorporating it into Netview/PC as the standard way for networking devices to send network management information to Netview. CSI and Systems Strategies, Inc. recently announced DDM tools that initially target vendors that want to link their devices to Netview. There is little interest yet in DDM as a general distributed networking tool, CSI's Pickens admits.

Frankly, developing DDM or APPN products right now seems like a risky venture at best; who knows when the offerings may suffer a change to something new, strange and possibly incompatible?

Horwitt is a *Computerworld* senior editor, networking.



Traditionally, the MIS world has viewed PC-based local area networks with a healthy dose of skepticism. A "prove it to me" attitude. And in an arena ruled by powerful mainframes, that approach has given rise to a few misconceptions and doubts about LAN performance.

Well, doubt no more. Because with the industry standard SFT NetWare v2.1, Novell offers the LAN software powerful enough to convince even the toughest MIS skeptic.

SFT NetWare v2.1 gives you the features and functionality of mini/mainframe systems at a fraction of the cost. With extensive fault tolerance, security and LAN-to-mainframe connectivity, it makes LANs advanced enough for major corporate, government and education installations.

No other LAN software even approaches the level of fault protection and data security built into SFT NetWare v2.1. Novell has pioneered LAN fault tolerance, and provides protection from failures in server hardware. In addition, enhanced security locks and passwords give you complete control of the information stored on your LAN.

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ISDN

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attempt to defuse the fears of potential users who shy away from the ISDN plan to provide high-speed voice, data and, eventually, video transmission over one telephone line.

"A lot of the concern stems from people who look at ISDN as a replacement for plain old telephone service," Hodgson added. "It's not. But the increased bandwidth ISDN will afford is going to reduce process time, cycle time and save service money."

User slant

Although the group has not ruled out working with standards bodies like the Corporation for Open Systems, its focus will remain user-oriented rather than vendor-oriented.

"We're not trying to be policemen or enforcers," said group member Richard Stephenson. "We just want the developers to know what the user's requirements are."

Meanwhile, in St. Louis, a digital congratulations went out over the wires from the offices of Southwestern Bell Telephone and Telegraph Co. to the Houston office of Allen T. McInnes, executive vice-president of Tenneco, Inc.

Selectivity

When McInnes received the number at which the call originated on his computer screen before even picking up the telephone receiver, he had tapped into ISDN's selective call-screening feature.

Southwestern Bell will install more than 1,100 ISDN lines for Tenneco by the end of this month and 2,400 by the end of August.

During the next six months, Southwestern Bell will begin ISDN service for Shell Oil Co., 3M Co., AT&T Network Systems and AT&T Technologies, Inc.

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LAN performance.

SFT NetWare v2.1 simplifies network management with menu-driven utilities that let you control the network from any workstation. Advanced accounting features allow you to audit and account for users or departments utilizing network resources. Available communications links give you unsurpassed connectivity with mini/mainframe systems and other LANs. And SFT NetWare v2.1 supports OS/2 as well as DOS workstations.

To get LAN performance that raises your MIS standards, get the LAN system with no doubts about it—SFT NetWare v2.1. See your Gold Authorized Novell Reseller, or call 1-800-LANKIND.

For more information, call from your modem 1-800-444-4472 (8 bit, no parity, 1 stop bit) and enter the access code NV217.

NOVELL

For network solutions, you should be seeing red.

LAN security

FROM PAGE 47

password of up to 15 characters before connecting to any network destination or accessing any menu, DCA product manager Marty Grubin said.

USF then matches the user's identification with a data base of user profiles and their access-authorization level before providing entry.

Users can also access the host computer from any location, eliminating the need for network security based on access to physical terminals.

The system uses a menu-driven administration facility to define user profiles for network access, as well as the configuration of all destinations and functions, DCA said.

USF also provides a time-accounting program that provides an activity record to determine the level of network use and security breaches.

The system resides on any Digital Equipment Corp. VAX/VMS computer connected to a DCA Series 300 LAN Net network bridge using DCA's network operating software Version 4.10 or higher.

USF is currently being used in networks utilizing electronic data interchange, Grubin said.

DCA also plans to offer a version of USF in the first quarter of next year that can be incorporated into their Open Systems Interconnect-based Open Network Management System running in a Unix environment, the company said.

USF is priced from $15,000 to $25,000, depending upon the number of users.

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BIT BLAST

DEC plans FDDI, Decconnect integration

Digital Equipment Corp. recently unveiled its strategy for supporting the Fiber Distributed Data Interface (FDDI) standard. DEC said it plans to integrate FDDI into its Decconnect system, bridging "anyone's" Ethernet subnet to an FDDI backbone. DEC also said it expects remaining FDDI issues to be resolved within the next three to six months.

Network Software Associates, Inc. in Laguna Hills, Calif., has packaged its full line of IBM Systems Network Architecture (SNA) protocols into one bundle, claiming a 40% cost savings. CompleteSNA, which runs on IBM Personal Computers and Personal System/2s, includes IBM 3270, IBM 3770/RJE, LU6.2, LU0 and Synchronous Data Link Control. It costs $1,495. Buying each of the vendor's SNA packages separately would reportedly cost more than $2,500.

Cylink Corp. in Sunnyvale, Calif., has signed a contract to provide customised encryption modules for Master Card's Banknet network to make increased security available to the credit card service's customers. Installation is slated to begin in the first quarter of next year.

Also by the first quarter, **Ungermann-Bass, Inc.** said it will have ported the Manufacturing Automation Protocol (MAP) 3.0 stack onto the PC-bus, the PC-bus interfaces for the IBM 7552 industrial computer, DEC's Q-bus, Intel Corp.'s Multibus and Motorola, Inc.'s VMEbus. During the remainder of 1989, Ungermann-Bass said it will release network management for its Net/One Open Systems Interconnect, MAP 3.0 for the Token Bus, Message Management System support for DEC VMS and IBM OS/2 and FTAM services for DOS.

Four architectures will continue to dominate the factory floor, according to **Advanced Manufacturing Research Corp.**: IBM's SNA (Token-Ring), Digital Equipment Corp.'s Decnet, Transmission Control Protocol/Internet Protocol and Open Systems Interconnect (OSI). As for OSI, one industry pundit recently pegged government and international sectors as its two major markets.

Santa Monica, Calif.-based **Retix** has won a $10 million order from **Ing. C. Olivetti & Co.** Under the two-year deal, Retix will provide its OSI Starlan Ethernet controllers and routers for use with Olivetti Unix-based servers and personal computers.

BNR, a subsidiary of Northern Telecom, Inc., recently claimed to have completed the world's first telephone call using the Basic Rate access standard of Integrated Services Digital Network over a single fiber-optic strand.

AT&T recently filed a tariff to increase the price of analog private-line circuits less than 500 miles in length, which would result in a net increase of $33 million in private-line revenue, the carrier said. The short-haul intercity links, which are the most expensive to provide, would experience the greatest increase, AT&T said. In addition, the one-time charge for central office connection will increase from $134.65 to $196.

Flexlink International Corp. and **DB/Access, Inc.** have announced a joint development pact to integrate Flexlink's connectivity software with DB/Access's data extraction and data sharing capabilities. The two firms are reportedly working with a major aerospace company to link dissimilar data bases on IBM/MVS, IBM/VM and Digital Equipment Corp. VAX/VMS systems.

Compuserve, Inc. has signed a deal with **Packet/PC, Inc.** that allows Compuserve to market the Packet/3270 micro-to-mainframe link to customers of its proprietary public data network.

Financial services provider **Goldome FSB** has selected **Safecom**, a joint venture of Timeplex, Inc. and Comsat General, Inc., to provide satellite transmission services for its voice and data network. Safecom's SafeT-1 service will link Goldome's New York and Seattle mortgage offices with a full T1 circuit at a more competitive cost than three 56K circuits, Safecom claimed.

Because of "regulatory and judicial uncertainties," **Pacific Bell** recently announced it will stop work on its Project Victoria technology and will instead license the technology to others in the telecommunications industry for completion. Project Victoria is a proprietary multiplexing technology said to divide an ordinary telephone line into seven channels capable of simultaneous digital voice and data transmission.

Rabbit Software Corp. in Malvern, Pa., said it has completed its effort to merge with **CTI Data, Inc.** in Raleigh, N.C. Rabbit acquired CTI Data for a total of 333,333 shares of Rabbit common stock, representing about 2.5% of the shares outstanding after the merger, Rabbit said.

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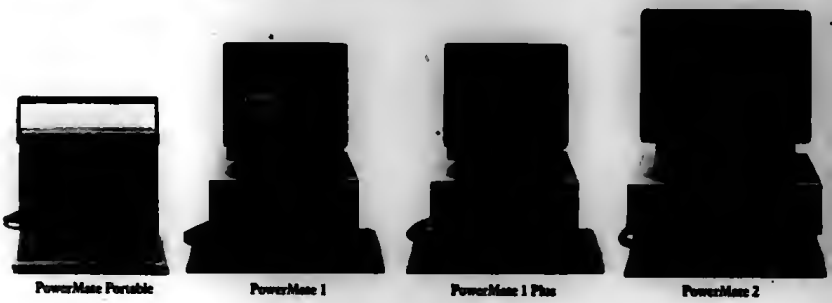

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Nothing to second guess there.

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Software compliments of: Autodesk, Inc., Microsoft Corporation, RealWorld Corporation, Software Publishing Corporation, Three D Graphics, Inc., and Ventura Software, Inc.

C&C

Net manager goes to work

Sytek monitors TCP/IP-based Ethernet implementations

BY KATHY CHIN LEONG
CW STAFF

MOUNTAIN VIEW, Calif. — Pledging support for open standards, Sytek, Inc. last week announced a network management system said to monitor its Transmission Control Protocol/Internet Protocol (TCP/IP)-based Ethernet networks.

The system is the first in a series of management offerings that will eventually migrate the vendor's product line to the Open Systems Interconnect (OSI) standard, according to Peter Filice, Sytek's director of product development.

Since the company's inception more than seven years ago, Sytek has promoted a proprietary network known as LocalNet. Yielding to increasing market pressure during the past three years, the company began rolling out products supporting Ethernet, token-ring and a variety of cabling schemes.

The company is supporting TCP/IP "because it is the standard in the market that is usable today," Filice said. "When OSI networks are ready, we will migrate."

The Sytek 9100 Network Management Center is based on a Sun Microsystems, Inc. Sun-3/50 workstation and is said to support thousands of TCP/IP nodes.

The network software, priced at $9,000, reportedly takes advantage of Sun's windowing user interface. It also features a Unify Corp. relational SQL data base, performance management, configuration capabilities and fault isolation through device polling.

Missing element

What the Sytek 9100 Network Management Center does not yet provide, however, is a pictorial view of the network, a feature readily available under US West Network Systems, Inc.'s Netcenter offering.

In order to take advantage of the graphical interface, users can obtain a real-time bar graph of packet traffic on the network, according to Filice.

Although it is available today, the software does not yet support IBM's Netview/PC or the Unified Network Management Architecture (UNMA) espoused by AT&T. However, Filice claimed that support for Netview/PC is scheduled for 1989.

"We are still taking a look at UNMA," he said.

Sytek said the Sytek 9100 Network Management Center is portable across all Sun-3 machines. In addition, the vendor is considering supporting the software on IBM's Personal System/2 platform as well as on other workstations in the future, according to Filice.

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NEC Information Systems, Inc., Dept. 1610, 1414 Massachusetts Ave., Boxborough, MA 01719.

PC Expo

CONTINUED FROM PAGE 47

XNS and PCS/TCP are $175 and $300, respectively, while server-based versions cost $875 and $1,525, respectively.

• Excelan unwrapped a series of products, including a software upgrade for its Lanalyzer, an IBM Micro Channel architecture Ethernet controller, an intelligent Ethernet card and enhancements to its LAN Workplace for DOS. The latter upgrade provides users with direct IBM host access over Ethernet, links to Novell's Advanced Netware 2.11 and 2.15 servers and supports a number of third-party terminal emulators.

• Gateway Communications, Inc. announced a high-speed G/Ethernet 16-bit LAN adapter card for IBM Personal Computer ATs and compatibles. The vendor claimed the card performs at data transfer rates faster than 1M bit/sec.

The product features 64K bytes of onboard random-access memory with 16-bit data transfer to PCs. G/Ethernet will also be available in an 8-bit and Micro Channel version. The unit will be priced at $525.

• 10Net Communications unwrapped a 10M bit/sec. fiber-optic LAN card said to link up to 392 PCs over 6 km. Bundled with the 10Net operating system, it is scheduled to be available in August for $1,295.

• Digital Communications Associates, Inc. (DCA) announced two Irmalan gateway products. The Irmalan 802.2 Gateway allows PC users on non-IBM or IBM Netbios-compatible LANs to access an IBM mainframe via its Token-Ring network; it will cost $595 when it becomes available later this summer, DCA said.

The Irmalan SDLC Gateway 2 reportedly enables PCs on a LAN to emulate an IBM 3274 or 3276 controller. This gateway transmits data three times faster than the current Irmalan Gateway, which it replaces. The SDLC Gateway 2 will cost $1,195 with upgrades available for $395 to current users and is scheduled to be available this fall.

• Waterloo Microsystems, Inc. said it acquired two gateways from Crowntek Information Systems, Inc., which will connect its Port network operating system to IBM mainframes. The 3270 Cntserver runs on a PC through an Irma board, and the SNA/Synchronous Data Link Control Gateway lets PCs on a Port LAN link with an IBM host at more than 19K bit/sec.

NEW PRODUCTS

Local-area network hardware

A line of Q-bus-compatible data communications interfaces for Digital Equipment Corp.'s Microvax 3500 and 3600 computers are now available from Simpact Associates, Inc.

The platform for the new interfaces is the ICP1622T, a functionally equivalent repackaging of the ICP1622S communications front-end processor. Introduced with the processor were a host of distribution panels, shielded cables and a standalone distribution box that is said to support up to 16 independent communications lines.

A Microvax III-compatible 12-port expansion module is also offered. Software protocol packages that execute on the ICP1622T include high-level data link control, Synchronous Data Link Control and CCITT X.25.

The ICP1622T costs $4,500.

Simpact Associates, 9210 Sky Park Court, San Diego, Calif. 92123. 619-565-1865.

An Ethernet fiber-optic local-area network concentrator is now available from Versitron, Inc.

Called Fiber Star Hub, the concentrator collects data from each workstation for retransmission to all other workstations. At each station, the product converts optical signals to electrical signals and also performs collision detection. The electrical signals are said to be compatible with most Ethernet network interface controllers, including those from 3Com Corp., Novell, Inc., Ungermann-Bass, Inc. and Western Digital Corp.

The Fiber Star Hub costs $350. For each pair of workstations, there must be a Fiber Star Transceiver, priced at $595, in the concentrator.

Versitron, 9005 Junction Drive, Annapolis Junction, Md. 20701. 301-497-8600.

Network services

A terminal session manager for IBM MVS/VTAM networks is now available from Blueline Software, Inc.

Multiterm/MVS is said to give network users on VTAM-connected terminals menu-driven access to specified network applications. It also includes full messaging capabilities and a help desk function.

Multiterm/MVS is priced at $17,000 for a site license.

Blueline, Suite 340, 1500 S. Lilac Drive, Minneapolis, Minn. 55416. 612-826-0313.

Customer-premise equipment

A line of digital key telecommunications systems designed for businesses with up to 100 telephone sets has been announced by Northern Telecom, Inc.

The Meridian Norstar includes LCDs that function as user prompts and has bilingual programming capability. The system includes a personal computer interface circuit board and software that allows users to access computer power through the twisted-pair wiring of the telephone system.

The Meridian Norstar will cost approximately $400 per station.

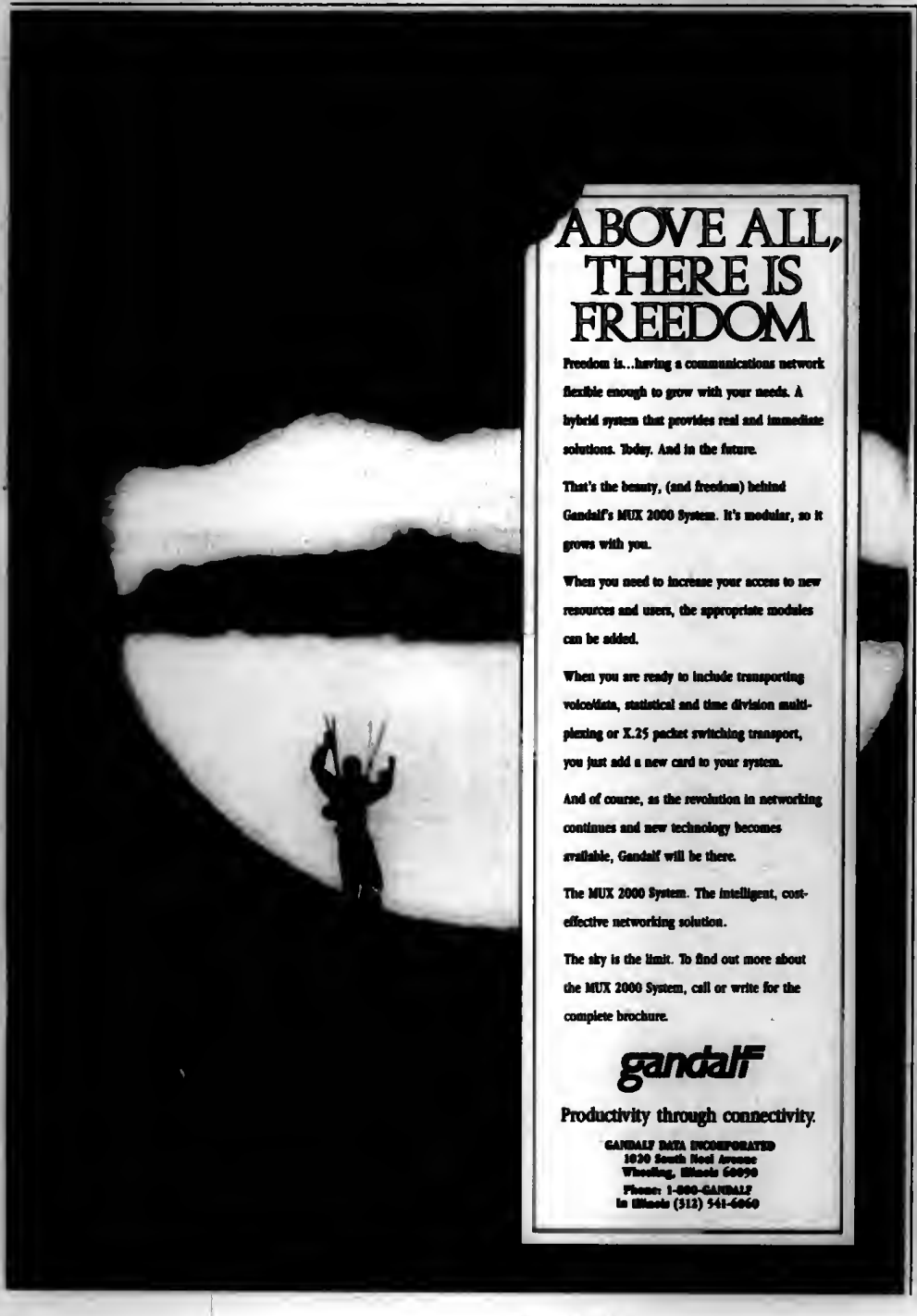
Northern Telecom, 200 Athens Way, Nashville, Tenn. 37228. 615-734-4000.

Harris Corp.'s Digital Telephone Systems Division has reportedly added Automatic Call Distribution (ACD) facilities to its Harris 20-20 private branch exchange system.

According to the vendor, the latest version of ACD software incorporates sophisticated queuing and routing techniques and will accommodate up to 128 agents, divided into a maximum of 16 agent groups. The software permits up to 32 designated support numbers.

Depending on configuration and hardware, the Harris 20-20 ACD software costs from $7,000 to $10,000.

Harris Digital Telephone Systems, P.O. Box 1188, Novato, Calif. 94948. 415-382-5000.



Links

A Synchronous Data Link Control communications board for the IBM Personal Computer, XT, AT and Personal System/2 Model 30 and compatibles has been announced by Network Software Associates, Inc.

Called the Adaptcom Model C, the half-slot board is designed for personal computer-to-host and PC-to-PC communications using the company's AdaptSNA software packages and is said to communicate at speeds of up to 19.2K bit/sec.

The product supports remote PC-to-host links via any of four IBM Systems Network Architecture protocols: interactive 3270, LU6.2 Advanced Program-to-Program Communications, batch-oriented 3770 Remote Job Entry and program-to-program LU0.

Adaptcom Model C costs $245. AdaptSNA software costs from $285 to $785.

Network Software Associates, 22982 Mill Creek, Laguna Hills, Calif. 92653. 714-768-4013.

Must Software International has revised its micro-to-mainframe package, **PC Nomad.**

Version 2 is said to allow IBM Personal Computer-to-PC, PC-to-IBM 9370 and PC-to-IBM 370 communications. Information processing can be supported between PCs and between PCs and IBM VM-based machines via an asynchronous connection. Mainframe data that is accessed for read and write processing can be in Nomad, IBM's SQL/DS and DB2 or Teradata Corp. format. The product runs on the IBM PC XT, AT or compatibles with IBM PC-DOS or Microsoft Corp. MS-DOS 3.0 or higher.

PC Nomad2 costs $795. Runtime versions cost from $50 to $100 per copy, depending on volume.

Must Software, 101 Merritt 7, Norwalk, Conn. 06856. 203-845-5000.

Modems/Multiplexers

A 9.6K bit/sec. CCITT desktop modem has been announced by **Multi-Tech Systems, Inc.**

The **Multimodem V32** offers dial-up asynchronous, full-duplex operation over public switched telephone networks. The modem operates at 9.6K, 2,400, 1,200 and 300 bit/sec. and is IBM Personal Computer AT-compatible. Communications can be synchronous or asynchronous and full-duplex over two-wire dial-up or leased lines. Two RJ11 telephone jacks are included.

Multimodem V32 costs $1,495.

The company also announced two modems for the IBM Personal System/2. The **Multimodem224PS** is an internal board modem providing 300, 1,200 and 2,400 bit/sec. transmission. The **Multimodem224ES** internal modem includes error detection and retransmission in addition to data compression. Both modems install in IBM PS/2 Models 50, 60 and 80 and are compatible with IBM's Micro Channel architecture and OS/2.

The Multimodem224PS costs $499 and the Multimodem224ES costs $549.

Multi-Tech Systems, 82 Second Ave. SE, New Brighton, Minn. 55112. 612-631-3550.

Everex Systems, Inc. has introduced a facsimile modem that reportedly permits microcomputer users to exchange documents with any Group III facsimile machine.

The **EF-12/48** will also function as a Hayes Microcomputer Products, Inc.-compatible 1,200 bit/sec. modem. The product includes communications software for storing up to 400 phone numbers and a directory for autodialing support. The modem requires an IBM Personal Computer, PC XT, AT or compatible; 512K bytes of memory; a hard disk drive; and a serial port. A video graphics adapter is required for viewing facsimile documents.

The EF-12/48 costs $495.

Everex Systems, 48431 Milmont Drive, Fremont, Calif. 94538. 415-498-1111.

Diagnostic equipment

A performance analyzer for CCITT X.25 packet networks has been announced by **Questronics, Inc.**

The **X.25 Analyzer** features performance-level statistics for user-level transaction data and Level 3 decoding of the X.25 line. According to the vendor, the product captures and reports frame information on the link level, packet information on the X.25 level and transaction data at the user level. The analyzer operates in a stand-alone environment and can be rack-mounted.

The X.25 Analyzer costs $5,950.

Questronics, 3570 S.W. Temple, Salt Lake City, Utah 84115. 801-262-9923.

Data/Ware Development, Inc. has announced the **DW345**, a monitor for IBM or plug-compatible mainframe I/O channels with data streaming transfer rates up to 4.5M byte/sec.

The product was designed to continually monitor Channel Command Words and data transfers of the I/O channels and record channel events in trace buffer memory until detection of user-specified trigger conditions. User-selected areas of trace buffer memory can be displayed on a personal computer screen in either a time chart or a 0 to 1 format for analysis of recorded channel control sequences.

The DW345 costs $14,495.

Data/Ware Development, 4204 Sorrento Valley Blvd., San Diego, Calif. 92121. 619-453-7660.

The longest line of protocol converters comes from the company that's built them the longest.

KMW Systems offers the most complete line of protocol converters available, designed with experience no one else can claim. After all, we invented the first microprocessor-based protocol converter more than ten years ago, and we've been helping companies make the right connections ever since.

KMW protocol converters allow local or remote connection of virtually any asynchronous device to any system using IBM protocols.

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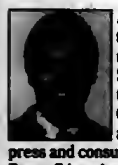


A week before the announcement of IBM's Silverlake, Digital Equipment Corp. trooped around to the press and consultants in an anti-Ramp C benchmark campaign. Word having gotten out that IBM would be touting Silverlake's Ramp C performance at the rollout of its long-awaited mid-range machine, the alarm bells sounded in Maynard.

You'd think they would have gone off sooner. For more than a year, IBM has been distributing a glossy brochure showing the results of Ramp C tests of the System/36 and 38, 9370 and 4381. Various VAXs were also tested. The IBM systems came out looking good.

Shortly after the brochure came out, consultants began to clamor for some response from DEC. For years, the performance of a VAX-11/780 had been considered equivalent to one million instructions per second (MIPS). According to the IBM results, which were designed to measure commercial performance rather than mathematical performance, it started to look as if one VAX MIPS equaled half an IBM MIPS.

No formal response by DEC was apparent, by my count, for 15 months — until a week before the Silverlake announcement. And then the response was half-baked.

Almost a year ago, *Compu-*

Continued on page 61

HP sliding back in the groove

Spectrum touted, but industry giant hits mark with software, support

BY JAMES A. MARTIN
CW STAFF

Boasting its Spectrum series of minicomputers, Hewlett-Packard Co. is grooming itself as a resurgent force in the computer industry. But whereas HP is making progress with users, it is not doing so by dazzling them with the RISC-based Spectrum but by giving them old-fashioned performance, software and support.

"Our primary concerns when we went shopping for a new system were the software capabilities," said Ken Facer, executive vice-president of California's San Bernardino County Credit Union. The credit union is in the process of converting from a Digital Equipment Corp. VAX 7085 to an HP 3000 Model 950.

The 950 is one of HP's Precision Architecture machines — also known as the Spectrum series — and is based on a reduced instruction set computing (RISC) architecture.

"Once we chose the best software systems, we started looking at the hardware," Facer said. An independent consultant was called in to help the company decide between a DEC VAX 8700 and the 950. The 950 won out, Facer said, because the software system offered by Summit Software, Inc. in Columbus, Ohio, appeared to be the most efficient.

Also, the 950 offered monthly maintenance costs that were about half of DEC's, a smaller footprint and the advantages of the RISC environment, according to Facer.

HP's Precision Architecture is an important selling point because of its efficient performance, flexibility and upgrade path, Facer said. But it played only a supporting role in the company's decision to convert from DEC to HP.

After a one-year delay, the Spectrum series began rolling out on a limited basis late last year and is now in general release. Although HP does not discuss specific shipments, analysts said the majority of systems shipped to date have been to HP's installed base of customers, who have been waiting to upgrade from the previous high-end machine, the HP 3000 Model 70.

Now that Spectrum is out — there were systems introduced last April as well — HP has embarked on a "get tough" campaign not seen before from this previously mild-mannered computer maker. A recent full-page newspaper advertisement boldly exclaimed: "Every day, Hewlett-Packard helps IBM, DEC and Sun realize their true potential," a reference to HP's vigorous support of industry standards.

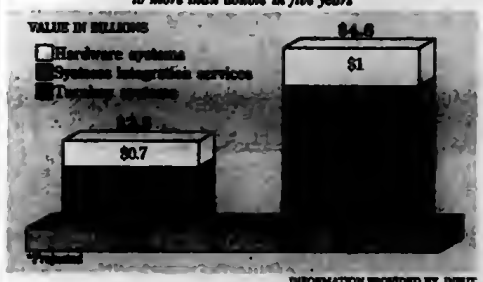
"When you have a few clouds over your product line," said HP President and Chief Executive Officer John Young at the com-

Continued on page 60

Data View

Federal systems integration market forecast

With a government focus on upgrading in-house information resources, demand for integrated and turnkey systems is expected to more than double in five years



INFORMATION PROVIDED BY INPUT
CW CHART

Vaxstations' power grows

BY NELL MARGOLIS
CW STAFF

MAYNARD, Mass. — Quantum leaps in color and memory will mark six Vaxstation 2000 models debuting next month from Digital Equipment Corp.

The system is aimed at users involved in heavy computational, graphics-oriented work: mechanical and electrical computer-aided design, software engineering and financial trading applications. The latest additions

Continued on page 60

Graphics VDTs on the outs

BY J. A. SAVAGE
CW STAFF

MONTEREY, Calif. — Users are demanding workstations with integrated computing and graphics capabilities; meanwhile, user interest in display terminals is dwindling, Dataquest, Inc. said at its 1988 Graphics and Imaging Conference held here recently.

Dataquest's findings support the reasoning behind start-up vendors Stellar Computer, Inc.'s and Ardent Computer Corp.'s decisions to build powerful single-user graphics and computing systems.

Established vendors such as Apollo Computer, Inc. and Silicon Graphics, Inc. have responded as well. Apollo has announced a competing high-end workstation, and Silicon Graphics has said it will offer a similar system by year's end.

"Graphics are no longer an option; they've become an integral part of the operating system," said Mike Tyler, Dataquest's director of graphics and imaging. "Graphics will become the way computers think."

U.S. workstation sales are expected to increase 70% by the

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Inside

- EMC ships solid-state disk for Prime. Page 58.
- Unisys moves Burroughs drive to Sperry systems. Page 61.
- CIE considers budgets with entry-level systems debut. Page 62.

Qualogy casts WORM drive for DEC

SAN JOSE, Calif. — Qualogy, Inc. is offering a 12-in. write-once read-many (WORM) optical drive subsystem for Digital Equipment Corp. VAX- and PDP-11-based workstations using the Q-bus.

The subsystem can be used for remote data collection and can be swapped for or added to tape drives with no change in software, according to the vendor.

Although the latest optical drive announcements have been smaller in form size — either 5¼- or 3½-in. — Qualogy's marketing manager, Darrell Heinemann, said the company is staying with a 12-in. form because "it is the most stable of optical drives."

DEC announced a 12-in. WORM subsystem in April.

Jukebox support is planned for fall, Heinemann said, but the current configuration is one platter per read-write head.

The subsystem, called QLC-5000, operates with any DEC operating system that supports DEC's tape drive standard without any modifications to software.

The drives are supplied by either Optimem Co. — the Model 1000 — or Laser Magnetic Storage Company International — the Model CDD 1200 — Heinemann said, with Qualogy supplying the boards. Laser Magnetic supplies the WORM drive sold in DEC's 12-in. product.

Each platter is capable of storing 2.4G bytes with file-access rates as low as 300 msec, according to Qualogy.

"Using a standard DEC driver in the subsystem ensures that the data stored on it will be accessible to future systems," said Heinemann, who added that the driver will keep the system from being rendered obsolete as DEC operating systems for directory and data management systems change.

Single-unit price is $19,000, including drive cable and controller.

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EMC sports disk device for Prime

BY STANLEY GIBSON
CW STAFF

HOPKINTON, Mass. — EMC Corp. recently began to ship a solid-state disk device for Prime Computer, Inc. systems called the Allegro Expanded Storage System. The device can be configured with 16M to 512M bytes of random-access memory.

EMC claimed the major benefit of the device is that it can increase the number of I/Os per second on a Prime system by four times. EMC senior product manager Rick Gauntlett claimed that the Allegro can perform as many as 300 I/Os per second on a Prime 9955II model.

The Allegro includes the Allegro Storage Controller, a 24-MHz disk interface card that transfers data at a rate of 3M byte/sec. EMC said it tranfers data faster to and from a solid-state device than a Prime 4005 or 4006 controller.

EMC is also offering an optional battery backup with the solid-state device to protect data in the event of a power failure. The backup system, called Datasave, has three options: Datasave I has only a battery backup, Datasave II includes a battery backup and a Winchester disk drive, and Datasave III is a battery backup and a dual-disk drive.

Prices range from $27,500 for a 16.2M-byte version to $513,000 for a 528.7M-byte model. Monthly maintenance fees run from $150 to $400. The Datasave battery options range in price from $9,000 to $24,000.

EMC said it will offer free evaluations of Allegro to Prime users until the end of this month.

Proteus adds 386 systems

HASBROUCK HEIGHTS, N.J. — A Unix-based multiuser system including software and a 15-month maintenance service package was recently added to Proteus Technology Corp.'a line of multiuser systems. Users need only insert applications software to complete the system, according to the company.

Users may order the system with an operating system other than Unix, the vendor said.

The system, called System 3400M, is based on Intel Corp.'a 80386 microprocessor. It has clock times of 20 or 25 MHz and hard disks ranging from 72M to 1G byte operating with access times as low as 0.5 msec, according to the company. The System 3400M can support up to 64 terminals.

Standard features include 2M bytes of 32-bit random-access memory, four serial ports, a 60M-byte streaming-tape drive, a loaded operating system, a video graphics controller, a monitor and 15 months of on-site maintenance.

The System 3400M, available now, is offered at a base price of $6,499.

On the outs

CONTINUED FROM PAGE 57

end of this year over 1986 levels, and their cost will continue to decrease, accounting for only a 40% increase in revenue for computer vendors in the same time frame, according to Dataquest.

Meanwhile, U.S. demand for graphics terminals, as distinguished from alphanumeric terminals, grew at less than 17% over 1986 levels. At the same time, revenue declined almost 13%.

Tyler predicted good news for those who continue to buy terminals — a continuing decline in their price but at a slower rate than in the last few years. "In the last five years, there has been a 51% drop in cost, with more low-end products being offered," he said. "Dynamic random-access memory chips will put brakes on the declining cost. While it will continue, it will only be 3% to 5%."

New order

Meanwhile, workstation users will see order emerging from chaos with the proliferation of standards such as X Windows, Renderman and Unix. "Companies are temporarily putting aside mutual mistrust to develop things that are mutually beneficial," Tyler said.

Companies will form coalitions to iron out standards instead of relying on standards committees, he said. "How viable would the photo business be if it took five to seven years to develop film?" Tyler said. "That's what we have today in the current standards process. It's better suited to thread standards for machine screws than computers."

And while graphics applications standards may be perfected, users should not expect any concrete improvement in performance standards such as millions of instructions per second and millions of floating-point operations per second.

Tyler likened the situation to creationists vs. evolutionists. "In the creationist camp, measurements would be taken in vectors per second or pixels per second," he said. "In the evolutionist camp, measurements would mimic applications, like CAD/CAM or desktop publishing.

"There will be a standard," he continued. "But I'm afraid it will be similar to mileage estimates on new autos — something that's there but no one believes it."

Emerson tacks on mid-range UPS

SANTA ANA, Calif. — Emerson Computer Power recently filled out its line of uninterruptible power supply (UPS) systems with a product designed for offices as well as computer rooms.

The Emerson AP130 is a compact system that runs quietly and is intended to be operated by non-computer professionals, according to the vendor. The UPS is rated at 3kVA and can provide 10 minutes of backup.

A fully on-line system, the AP130 acts as a power conditioner, providing the attached system with clean power. It offers complete frequency and voltage regulation, allowing the computer to run at optimum efficiency and reducing downtime and maintenance costs, Emerson said.

The AP130 is priced at $6,190.

Daisy CAD/CAE tools bloom for Sun systems

MOUNTAIN VIEW, Calif. — Daisy Systems Corp. is wrapping the latest Sun Microsystems, Inc. workstations with a broad range of homegrown and third-party software for computer-aided design and engineering (CAD/CAE) users.

Daisy recently announced the Advansys series of CAD/CAE systems based on Sun's 386I Intel Corp. 80386-based workstations or Daisy's own 386-based machines.

The line consists of eight turnkey CAD/CAE systems, which are targeted at large design teams performing various applications.

Daisy is the first vendor to incorporate Sun's 386I, introduced this past April, which runs both the Unix and Microsoft Corp. MS-DOS operating systems.

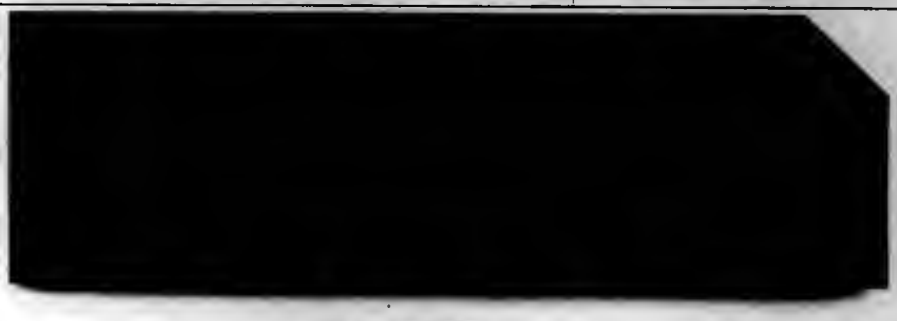
The Sun 386I system supports simultaneous Unix and MS-DOS Windows, allowing the user to cut and paste between applications, according to a Daisy spokesman.

Prices start at $23,000 for an entry-level design system based on a 20-MHz Sun 386I with 8M bytes of random-access memory, a 155M-byte hard disk drive and a 19-in. monochrome monitor.

At the high-end of the line is a digital design system, priced at $62,000, based on a 25-MHz Sun 386I, offering 8M bytes of RAM, a 327M-byte hard disk and a 19-in. color monitor.

Standard system-level software for the Advansys series includes Sun's SunOS operating system, Transmission Control Protocol/Internet Protocol communications software and Sun's Open Network Computing and Network File System, the spokesman said.

Shipments of Advansys systems based on the Sun 386I are slated to start in September. Advansys systems based on Daisy's Logician workstations are scheduled to start after the expected late-fall release of Sun's X11/News graphics and windowing software, according to Daisy.



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HP sliding

CONTINUED FROM PAGE 57

pany's annual users group conference last fall, "it's hard to go out there and sell aggressively. We're going to be much more aggressive in the marketplace."

The delay of Spectrum caused HP's standing in the minicomputer market to dip for several years, analysts said. The company's 1984 market share of 6.3% declined to 6% in 1986 but should climb to 6.6% by 1989, according to Shao Wang, a computer industry analyst at Smith Barney, Harris Upham & Co. in New York. Infocorp estimated HP's 1982 market share at 7.1%, dropping to 5.4% in 1986 but edging back up to 5.7% in 1987.

Although Infocorp said it expects HP's market share to climb further this year and in 1989, a spokesman for the firm would not give any specific projections.

Analysts said HP's new aggressiveness, its RISC-based architecture systems and its good reputation for customer support should help the firm chip away at minicomputer rival IBM, whose users are still waiting to see what AS/400, previously code-named Silverlake, is all about. In addition, some observers said HP is beginning to steal a little of DEC's thunder.

"There has been some erosion in DEC's market share recently, in part due to a slowdown in buying because of the October stock market crash," said Lawrence Harris, a computer industry analyst at Bateman, Eichler, Hill Richards, Inc., an investment banking firm in Los Angeles. "We also believe, in part, that DEC is losing some market share because of HP," he added, although he did not cite any specific figures.

Doug Spreng, general manager of HP's Commercial Systems Group, said HP is "very close to announcing the winning of several large, significant new customers," particularly in the manufacturing and financial services area.

Spreng did not elaborate on the identity of the customers but attributed their defection to HP to their interest in Precision Architecture as well as New Wave, a PC-based graphical interface, HP's Unix-based workstations and its Advancenet networking software.

Still, HP users contacted by *Computerworld* said they based buying decisions on traditional criteria rather than flashy ad campaigns and new architectures.

Practical matters

At Envirex, Inc., a Waukesha, Wis.-based water-treatment equipment manufacturer, Precision Architecture was only an "indirect" factor in the company's decision to convert from a remote IBM 3081 to an HP site.

Envirex acquired an HP 3000 Series 70 based on traditional complex architecture rather than beginning with RISC. "We wanted to start out on a small scale and then exponentially increase, and the conventional architecture was appropriate," said Dave Krohn, manager of business systems and services. Envirex has an option to upgrade to Precision Architecture in its contract with HP, he said. "Precision Architecture appears to offer some advantages, but we are not committed to it at this point."

Neither is the Metropolitan School District of Warren Township in Indianapolis. The school system is set to convert from an IBM 371 batch processing mainframe and a Wang Laboratories, Inc. VS 80 to an HP 3000 Series 70 in August.

"HP just happened to be the least expensive vendor we could have chosen to run the software we needed," said Jon Stock, director of data processing.

All in all, users and analysts said they do not expect HP to run away with the minicomputer market anytime soon. But, San Bernardino County Credit Union's Facer said, Precision Architecture "does give them a certain edge."

Vaxstations

CONTINUED FROM PAGE 57

to DEC's desktop workstation line feature an eight-plane graphics coprocessor — double the current capacity — that draws on more than 16 million colors to offer 256 simultaneous on-screen color choices, a DEC spokesman said.

In addition, the spokesman said, a 12M-byte memory expansion module boosts total system memory capacity to 14M bytes — more than twice the current 6M-byte limit.

Available under either DEC's VMS or Ultrix, the Vaxstations include the Microvax II CPU and floating-point unit and supply the user with a keyboard, a mouse, an Ethernet controller and a choice of a 15- or 19-in. color monitor.

And it does windows: All Ultrix-based Vaxstation 2000s include X Windows Version X10.4 as well as the Network File System and C, Fortran and Pascal compilers. All of the new Vaxstation configurations, a DEC spokesman said, are wholly compatible with applications developed for other DEC workstations.

The July wave of Vaxstations will give DEC an entry competitive with, for instance, Sun Microsystems, Inc.'s Sun-3/60 and the DN3000 and DN4000 from Apollo Computer, Inc., DEC said.

A diskless Vaxstation 2000 system featuring an eight-plane coprocessor, 6M bytes of memory and a 15-in. color monitor will cost $13,830; configured with 14M bytes of memory, the system will sell for $18,530.

Local storage or backup is available via 42M-, 71M- and 159M-byte disks, a 96M-byte streaming tape and a 1.2M-byte floppy disk.

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Unisys links former firms' components

BY STANLEY GIBSON
CW STAFF

BLUE BELL, Pa. — Accomplishing much sought synergy between former Burroughs Corp. and Sperry Corp. lines, Unisys Corp. recently announced that disk drives intended for Burroughs-type computers will be available on Sperry-type mainframes.

Unisys said it succeeded in adapting the B 9494-24 disk subsystem to its 1100/90 and 2200/400 mainframe models. The B 9494-24 double-density thin-film disk subsystem was previously announced in June 1987 for use with Unisys A, V and B 7900 mainframes, which are former Burroughs models.

Offered on former Sperry mainframes, the subsystem, including the controller, is called the 9399-S/B 9494-24 Disk Subsystem. It offers more than 1½ times the capacity and 1.7 times the transfer rate of the previous Unisys Model 8481 disk drives at a reduced price per megabyte, according to Unisys.

In the course of five years, the drive can save users 40% to 70% in cost per megabyte compared with equivalent configurations of Model 8470, 8480 and 8481 subsystems including maintenance. Power consumption and heat dissipation are one-third less than on Model 8480 systems. The subsystem can also use up to 52% less floor space compared with previous configurations, the vendor claimed.

Faster seek

The B 9494-24 features an average seek time of 17 msec and a block multiplexer channel transfer rate of 3M byte/sec., which are improvements compared with previous subsystems, Unisys said.

The drive brings to fruition the benefits promised by the merger of Sperry and Burroughs two years ago, said Clive R. Taylor, vice-president and general manager of peripherals and attachments.

The B 9494-24 subsystem is scheduled to be available in September for volume shipments to 1100/90 users. Deliveries of subsystems to 2200/400 users is slated for June 1989.

A minimum configuration of 5G bytes consists of a 5057-42/43 dual-storage controller, s 9399-S dual-string controller and a built-in B 9494-24 disk drive.

The price of a 5057-42/43 dual-storage controller is $80,000. The 9399-S dual-string controller with 5G bytes of unformatted built-in disk costs $99,400, and the cost of the B 9494-24 5G-byte dual-spindle disk drive module is $70,000.

Gibson

CONTINUED FROM PAGE 57

terworld began making requests to DEC to respond publicly to IBM's claims. After going back and forth with nothing concrete for almost a year, finally an unsatisfying white paper comes out.

As part of DEC's effort to set the record straight, the company is advocating the debit-credit benchmark. It will have results in about six to eight weeks, we are told, which would bring us to the time frame of its announcement of Decintact, a transaction processing package that is supposed to boost VAX transaction performance. There is no point in talking benchmarking unless the discussion makes you look good.

With no actual benchmarks to discuss at this point, DEC is merely trying to debunk Ramp C with a series of arguments, including the following:

- DEC claimed IBM tested its VAXs with phone line connections, which slowed them down compared with IBM systems with faster phone line connections. DEC said its VAXs are most often connected to Ethernet networks, not phone lines.

That may be true in most DEC installations. But for the kind of commercial transactions under discussion, phone line connections are most often used, according to one leading consultant.

- DEC also claimed that IBM's tests do not measure cost per transaction, considering such variables as how many computer operators and programmers are required on average to run the system.

This is a highly variable measurement, depending on the company, the competency of employees, the number of machines purchased and the application. And DEC uses a survey that shows that it takes fewer people to run a DEC system than it does an IBM system. In short, DEC hasn't returned IBM's serve yet; it has just bought a tennis racket.

To be fair, IBM's initial shot was questionable. Its Ramp C discussion was not scientific in that complete data was not furnished. Further, IBM has said it will not publish the specifications of the proprietary Ramp C.

If the discussion so far has been inadequate, there is a bright side. DEC is promising to make all details of its tests public. Then, the ball will be back in IBM's court. And it will be very interesting to see how the industry giant responds.

Gibson is *Computerworld's* senior editor, systems & peripherals.

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NEW PRODUCTS

Processors

CIE Systems, Inc. has added two entry-level systems to its current product line. Both are aimed at smaller companies that have a variety of computing needs but are limited by budget constraints, the vendor said.

The 680/45 and 680/55 come standard with 1M to 8M bytes of memory, eight to 16 direct ports and four multibus slots. The 680/45 has a Motorola, Inc. 68000 CPU and is said to have a clock speed of 10 MHz. The Model 680/55 is based on an Intel Corp. 68020 CPU and has a clock speed of 16.7 MHz.

Both systems support Winchester disk drives in 53M- to 170M-byte capacities. A ¼-in. streamer tape is optional.

The 680/45 costs $9,995, and the 680/55 costs $14,310.

The company has also introduced the 680/175, reportedly designed for businesses that require high-level computing capabilities, and the 680/275, also a high-end system. According to the vendor, both units have clock speeds of 16.7 MHz and are based on a 68020 CPU that supports 2M to 8M bytes of memory. The 680/175 has an enhanced small device interface, eight to 32 direct ports and nine multibus slots. A ¼-in. streamer tape is included with the system. The unit costs $27,995.

The 680/275 has a storage module device interface and 16 to 128 direct ports. There are reportedly 15 multibus slots. A ¼-in. streaming tape drive is optional. The system costs $55,995.

CIE Systems, 2515 McCabe Way, Irvine, Calif. 92714. 714-852-1313.

Data storage

A reusable tape cartridge shell that allows recovery of data stored on damaged IBM 3480 tape cartridges has been introduced by 3M Co.

Called the 3480 Tape Recovery Cartridge, the product was designed for use in data centers and conforms to all specifications for the 3480 drive subsystem. The cartridge is capable of performing 50 or more recovery routines and will be available through authorized dealers of 3M magnetic media products.

The 3480 Tape Recovery Cartridge costs $39.95.

3M/Data Products, 8200 Highwood Drive, Minneapolis, Minn. 55438. 800-688-1889.

Terminals

Data Decision Computer Corp. has announced the 3497-01/21 Workstation, a 15-in. monochrome-display intelligent workstation with dual-session capabilities.

The product offers a 12- by 18-cell matrix in 80-col. mode, and the user may select either a green or amber screen. Three interchangeable keyboards are available in 122-, 102- or 83-key configurations.

The terminal also offers simultaneous IBM 5291 or 3197 terminal emulation and was designed for use with the IBM System/34, 36 or 38 computers.

The 3497-01/21 Workstation costs $1,495.

Decision Data, 400 Horsham Road, Horsham, Pa. 19044. 215-825-7600.

A color terminal said to operate in most ASCII environments has been announced by Televideo Systems, Inc.

The Televideo 900C includes a 64-color library that can reportedly display a virtually unlimited number of eight-color palettes and can emulate the Televideo 905, 910, 920, 925 and Wyse Technology WY-50 and WY-350 terminals.

The 14-in. monitor can display data in either an 80- or 132-col. format with 24 rows. Optional status and message/function key label lines may also be used. The keyboard includes 32 user-programmable function keys and 256K bytes of nonvolatile key memory.

The Televideo 900C has a price of $1,095.

Televideo, P.O. Box 3568, Sunnyvale, Calif. 94088-3568. 408-745-7760.

Printers/Plotters

Two printer-sharing products have been introduced by Extended Systems, Inc. The Sharespool Model ESI-2098A and the Multispool Model ESI-2398A were designed for graphics and desktop publishing applications. Both products include parallel Centronics Data Computer Corp. interfaces and memory buffers that range from 1M to 4M bytes.

The Sharespool ESI-2098A provides four input ports and one compatible parallel output port. All four input ports can simultaneously transmit data at rates up to 20K byte/sec. The printer is reportedly user-transparent and costs from $1,395 with 1M byte of buffer memory.

The Multispool ESI-2398A was designed for printer-sharing environments that require multiple printers and transmit large amounts of graphical data. The printer features four parallel input and two parallel output ports, as well as one RS-232 serial output. The ESI-2398A is priced from $1,695 with 1M byte of buffer memory.

Cabling options are available for both models.

Extended Systems, P.O. Box 4937, Boise, Idaho. 83711. 208-322-7163.

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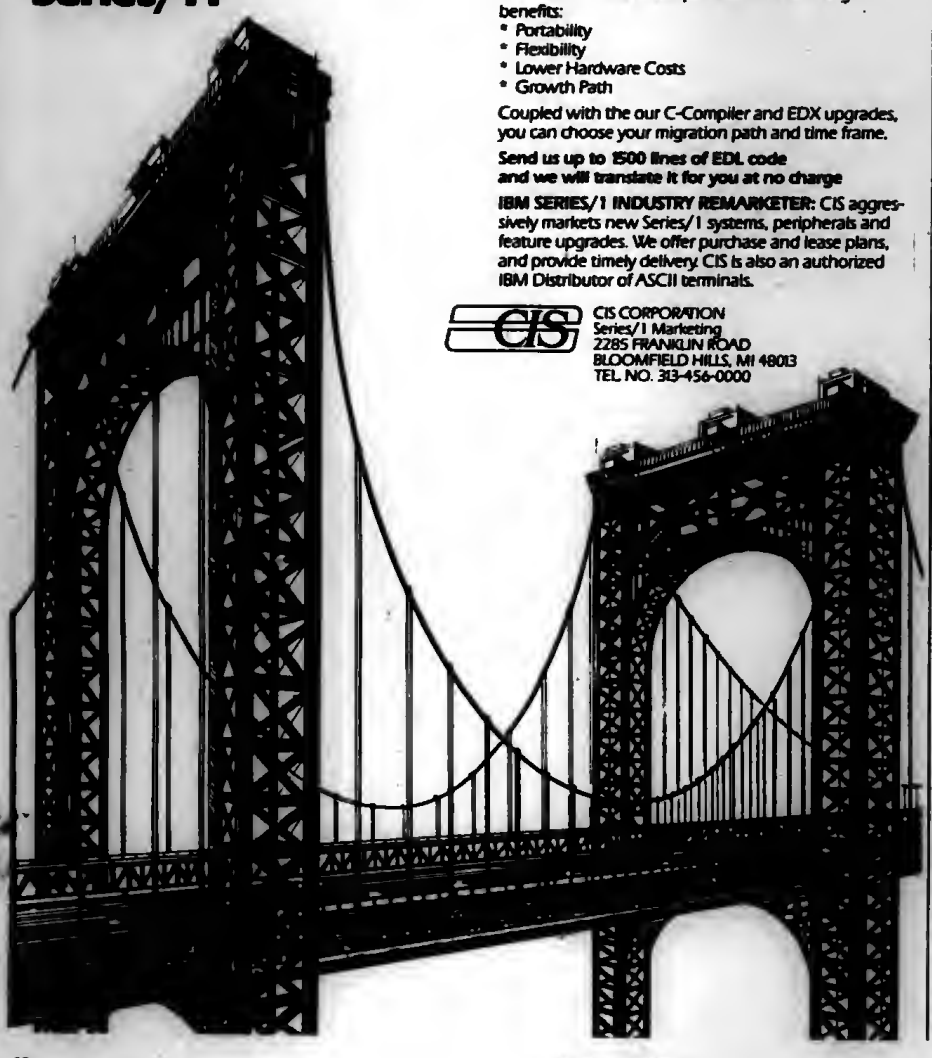

Try a systems model for large PC net launches

BY JAMES BRYCE

DAVE JOLY

The days of departmental-size local-area networks are quickly fading.

For many large organizations, the past half-dozen years have been a time of experimentation, of buying a handful of nodes from various vendors for pilot personal computer networks. Special projects or internal politics sometimes dictated more extensive use and resulted in permanent, departmental LANs, but for the most part, PC networks did not penetrate very far into the corporate computing structure.

But now, all that is changing. Organizations are contemplating, and implementing, networks of PCs that may range up to several hundred PCs in a single building, span a score of more buildings and transparently communicate with LANs of similar size throughout the world.

GTE North, Inc. in Westfield, Ind., provides one example of the new shape PC networks are taking. Three years ago, the company undertook the creation of a 2,500-node PC network, encompassing 13 geographically separate locations. "Our single biggest physical network is 700 nodes that are all PCs," says Dan Lively, manager of special projects.

While GTE North was an early adopter of the large-scale model for PC networks, there are definite indications that the idea is taking root in many other organizations. One such signal is the recent upsurge in the market for "network span" devices such as repeaters, bridges, routers and gateways.

According to Forrester Research, Inc. in Cambridge, Mass., this market, which amounted to $98 million in 1987, is likely to surpass $1.2 billion in 1991, specifically because of rising interest in comp-

Bryce lectures, conducts seminars and writes on computing, high technology and the effects of technology on society.

anywide networks.

Although networks fitting that description are not yet feasible, PC network installations have already reached levels of size and sophistication that make the ad hoc approach to the planning and installation of earlier LANs inappropriate.

Early efforts concentrated on the mechanics — the cables and cards — of physical installation. Often, the network was viewed as a cable system with special hardware attached. In particular, early LANs lacked cohesive software and systems planning to protect users from their own mistakes and safeguard information stored on the networks from destruction.

Not surprisingly, given the lack of organized planning and control, experienced MIS professionals regarded PC LANs in much the same way they viewed PCs themselves — as

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interesting sidelights that were essentially irrelevant to serious computing.

During the last couple of years, however, the technology has grown sophisticated enough to support large, cohesive networks of PCs that equal or surpass minis and mainframes in both total horsepower and the number of users and applications supported. Planning and implementation decisions have also become more critical, demanding big dollars and thousands of hours of time.

Today's large-scale LANs must fit into the broader context of organizational information systems. Pilot networks that became permanent departmental units must be integrated.

Connections among the disparate parts must be created and maintained. In fact, in terms of expense, complexity and the sensitivity of the information handled, construction of today's large PC networks has more in common with building a major software application than with the rapid deployment of small LANs.

For that reason, it may be helpful to transfer some soft-

GTE North's Lively

ware development concepts used for creation of large-scale systems to the task of planning and installing these networks.

Software design requires a complete listing of the input and output expected and desired. In a network, this is roughly analogous to determining and reconciling user wants and organizational needs.

In systems development, it is also customary to consider any assumptions that form the basis for use of the program. Similarly, the organization's plan and anticipated growth must be factored into network planning assumptions.

Construction of data structures in system design corresponds roughly to the formulation of the functional specifications for a network.

Finally, in the context of a large systems project, the broad scope of the program operation is defined in the main module of control code followed by descriptions of the steps necessary to carry out the desired functions under this control.

Translated to network design, these phases encompass decisions concerning standards requirements and network architecture, the actual selection of network hardware and software and provisions for network management and security.

Although they may not have thought of it in that way, some early implementers of large PC networks have applied several of these systems development techniques in their own planning

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Financial services lead the way

Penetration of personal computer LANs within each industry group was determined from interviews at 35,000 sites having medium or large-scale host-based systems

INFORMATION PROVIDED BY COMPUTER INTELLIGENCE
CW CHART

Learning to program for network consumption

BY FRANK PAOLINO

A multiuser environment, such as a personal computer local-area network, requires a different approach to software development than individual applications. Both design considerations and programming techniques change radically once MIS enters the realm of networks. What follows are suggestions on how to evaluate user requirements and adjust design and management procedures to serve the general interest.

• **Look for usage patterns.** It is important to be familiar with the work group for which you are designing applications, studying not only what tasks are performed but also how the work group functions as a unit.

Special attention should be given to areas of high demand for particular records or files. If users continually need access to certain information that is locked by one user, response time will degrade far beyond the desirable one-second response or even the three-second limit that most users will wait.

• **Anticipate access requirements.** On PC networks, everyone should have access to the same files. Therefore, the programmer must tell the software to open files in shared mode. Otherwise, all subsequent accesses to the file will be prevented, which means that users will be locked out of the files and unable to continue processing. This is one of the first surprises programmers encounter.

It is also important to make sure that access decisions are realistic. Most programmers assign themselves total rights and test the program under these circumstances. The user, however, may not have access to critical files or directories. If he tries to access such files, the network returns to the program with "file not found" errors, dumping the user to the operating system. It is good practice to log in as a certain user and test the program to ensure that he has access when appropriate.

• **Prevent conflict.** One of the most difficult areas of adjustment is dealing with contention among many users.

File and record contention can drive users crazy. Many former single-user programmers allow a user to make changes to the data base and then attempt to lock the record to replace the changed data. If he cannot get a record lock, the user either has to continue retrying or abandon his changes.

An even worse complication can arise from faulty record-locking procedure when users want to simultaneously update two records in two different data bases. In such cases, users should be instructed to lock both records before proceeding. If they cannot get them both locked, they should not begin the update operation and should unlock the one record they locked. Otherwise, a second user may lock one of the records, while the first has the other locked, and they both might remain in an infinite loop trying to get both records.

This situation is known as the deadly embrace. It is solved by prompting users to attempt to lock before beginning the operation. If they are unsuccessful, return them to the menu.

• **Use locks judiciously.** Decisions about record-locking procedures can have a major impact on network efficiency and must take into account patterns of access demand and human factors.

High-demand records such as inventory containing on-hand quantity need the "lock/write/unlock" approach to record writing. For work groups that need access to thousands of records, such as policyholders of an insurance company, the method of "lock and wait" will suffice since the chance of 10 or 20 users conflicting is minimal. If they do, however, users can always escape to the menu and work on another record.

Any record writes need a lock when multiple users might have access. But only allow users to attempt to lock a record once. If a record is in use by someone else, display an error message and return the user to a menu.

A different type of lock that anyone programming for a network should know and cherish is the semaphore lock. As opposed to file and record locks, semaphore locks can be used to lock just about anything. They provide a warning flag on a network that tells others that the file or function is in use. They are also handy to allow certain functions to be done by only one person at a time. A semaphore lock will prevent two users from performing identical operations simultaneously. For example, to prevent two users from updating the same word processing file on disk, place a semaphore lock on the file name, "My Doc." This is now a network flag called My Doc that users can check. If it is not locked, the semaphore function will place a lock on it. If it is locked, the user knows that someone has the file in use.

• **Detour around common disruptions.** Single-user programming allows updates to the data base indiscriminately. In a multiuser environment, the program must make data base replaces in sections and with a record lock. But if there are too many sections, the record will be locked too frequently, with consequent delays in the program. Do not allow users to make updates in one field at a time. Instead, provide the ability to update in blocks.

Programmers can also save themselves and network users some trouble by preventing them from updating files while printing. If another user has part of the file locked, the printing program cannot proceed or must skip that record, making the printout incomplete. In addition, if the printer resides in a different office or building, users may not know a printer has jammed. The printed message will falsely tell the program and the user that the record has been printed.

The best method of selective printing is printing a batch of items based on a range of dates that identifies the records they want to print and prints them.

Keep in mind, too, that there are third-party software libraries available that allow spooling to any network printer. Using those, you can then write an "n" or "l" — for network and local — function that lets users decide where to send printed output. Once they decide, they can change the default printer, sending all output to that device.

• **Prevent corruption of critical files.** It is advisable to place all maintenance functions in a utility program separate from the main program and accessible only by the network supervisor systems administrator. Certain maintenance functions can only be performed when the file is opened in exclusive mode. If two people try to rebuild an index, it will become corrupted.

If users wish to create temporary indexes or data files, they must be required to give those files a unique name or put them in a private subdirectory.

Proper program design, along with an understanding of work group information-handling patterns, will enable the programmer/analyst to design a system that is open enough to keep most users happy but controlled enough to both protect information and prevent bottlenecks in the work flow. •

Paolino is a project manager at Mayflower Consulting Group, a management information consultancy in Burlington, Mass.

Macintosh connects.

Net launches

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and design projects. GTE North's Lively, for example, expended considerable thought on input and output, or needs and wants, before settling on a network plan for his company. His methods were not formal, but one of the first things Lively did was assess end-user requirements.

Although there was no actual survey of each individual user, Lively and his group did investigate departments that had installed prototype PC LANs to find out how those networks were being used. That research, Lively says, led to the conclusion that electronic mail and the ability to share information were the biggest benefits a PC LAN could offer GTE North. Since those were determined to be the major uses, Lively knew the network had to be more than a system of wires for pushing data packets around.

The network was viewed as a complete package offering end-user services. A network operating system with file sharing and E-mail fulfilled such needs. In this case, however, an organizational assumption — a marketing department goal of reselling as well as using whatever network was selected — added an extra complication.

In addition to an internal need for a large transparent system capable of handling the applications mentioned, Lively and his group had to factor in requirements of potential customers.

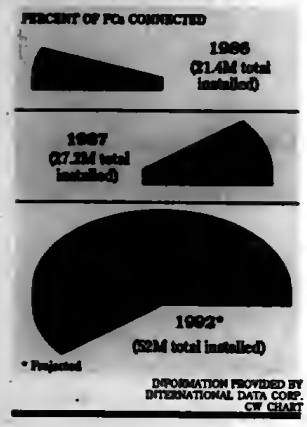
At Los Alamos National Laboratory in Los Alamos, N.M., which employs between 7,000 and 8,000 people at 60 sites scattered over a 30-mile area, both user desires and work flow considerations led to the decision to downsize from a minicomputer to a PC network environment.

According to David McNeese, the computing coordinator in charge of moving applications from Digital Equipment Corp. VAXs and Hewlett-Packard Co. HP 1000s to PC LANs, response time problems, return on investment and user convenience all factored into the conclusion. "We were pouring more and more money into older hardware with questionable results," he says, "and we had poor user front ends."

By providing applications such as computer-aided design and manufacturing, desktop publishing, virtual disk service, printer sharing, E-mail and connection to remote networks from a PC network, McNeese says, "we sought to be more responsive to user needs. The system was to provide a good, easy-to-use and reliable front end with minimal concern by the users over data integrity issues. The PC network gave us what we wanted."

PCs get hooked

Personal computer LAN links are beginning to make up a much larger portion of the total PC installed base



Functional specifications

After determining user and organizational requirements and evaluating these elements, the network planner is ready to provide the main module, a functional specification.

Paccar, Inc. in Bellevue, Wash., is a truck manufacturer that employs 10,000 people in 15 locations and produces Kenworth Truck Co. and Peterbilt Motors Co. trucks. At Paccar, nine basic goals provided the functional specification for a proposed PC network. According to Wayne Balsiger, senior research analyst, these goals were the following:

- Efficiency in the individual employee's workstation.
- Effective organizational interface at all levels.
- Mainframe access with multiple sessions, including data lookup and downloading.
- Fully operational PCs for analysis, word processing, communications and presentation graphics.
- On-line sharing of data files, spreadsheet analyses and manuals.
- Sharing peripheral devices such as printers, plotters and asynchronous dial-out modems.
- Hardware systems that will not become obsolete when a new operating system comes out.
- Minimum rekeying of data.
- Communications among all departments, divisions and selected outside suppliers.

These nine goals provided that "functional specification" for Paccar. They tell prospective vendors what the system is supposed to do but not how to do it.

Determination of what the network is to do is the first concern of Liz Bross, office automation manager at Southland Corp. in Dallas.

Southland is best known for its 7-Eleven convenience stores, and many of its approximately 50,000 employees are directly involved with such outlets.

Southland has 15 of Novell, Inc.'s "S" systems and two token-ring Novell networks. Each

Continued on page 69

Reality check

What users say they want and what they actually need for personal computer local-area networks may differ greatly. The following is a list of questions that may be used to help determine user wants vs. user needs.

✔ How many users groups or communities of interest are there? Where are they located geographically and/or physically? How many of these groups need to communicate with any other group or groups? Are there any special characteristics associated with any of the groups required for communications?

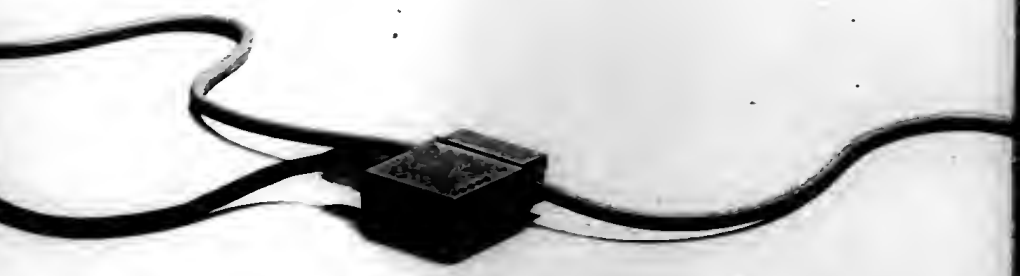
✔ What kind of data exchanges are taking place both within and between groups? Classify them according to activities such as file transfer, interactive, remote job entry, electronic mail and so on. What are the best traffic estimates for each type of activity within and between groups? Can the interchange volume be classified as low, medium or high?

✔ Characterize each user group in terms of its activities and any forecast changes. For instance, are activities in support of a centralized approach that the company plans to decentralize in the near future?

✔ Are there new activities that one or more groups plan on implementing that will have network impacts? For instance, are they planning on computerizing the preparation of manuals or technical materials using, for example, desktop publishing as opposed to regular word processing? Is the engineering department planning on purchasing intelligent computer-aided design and manufacturing workstations in the future? Capture all future impacts on network capacity, number of logical and physical connections, gateways and so on.

✔ Will you need a system of distributing costs and billing back to your users groups? These issues can have a large impact on network administration and support functions.

Excerpted and adapted from *Implementing Local-Area Networks* by Gene White, published by Network Management Services in Murray, Utah.



Will a net fly with radio transport?

BY AMY SOMMERFELD FIORE

Are you sick of waiting for the International Standards Organization to finish its Open Systems Interconnect protocol? Too impatient to wait for Integrated Systems Digital Network (ISDN)? Frustrated personal computer network managers have one inexpensive alternative they can turn to now: a radio-area network.

"It offers instant gratification," says David Levin, president of Netcomm, a New York-based network consultancy.

A radio-area network is based on modems with built-in radio transmitters and receivers. The end user sends a message or file to an address, and the modem uses packet-burst techniques to send it to another radio-based modem at frequencies in the VHF/UHF land-mobile range — the same range police and fire departments use. Although they do not support network operating systems, radio networks offer inexpensive asynchronous 9.6K bit/sec. rates — so-called "thin-route" transmission — in a 10- to 15-mile radius.

Advantages

Aside from a quick fix, radio boasts three basic benefits: it's less expensive than leased lines; it can be run where telephone lines are of poor quality or unavailable; and network terminals can be relocated without dropping more cable.

"I know some companies are looking at implementing radio on a large scale," Levin says. "Connecting a lot of single-terminal locations makes leased lines very expensive."

One radio network vendor, Dataradio Corp. in Atlanta, describes two scenarios in which radio is an attractive alternative:

Fixed systems. A radio network replaces leased lines between terminals and a host — either point-to-point or multipoint connections — to save monthly line or toll charges, decrease dependency on phone lines or avoid laying cable.

Mobile systems. A radio network provides data access in vehicles, on shop floors or across rural landscapes — areas where it is impossible or impractical to make physical connections.

"The problem with most other mobile data systems is the large start-up cost," says Steve Beeferman, vice-president of marketing. "Because everything must be custom-designed, it can cost users $50,000 or $100,000 to get started."

Dataradio claims a broad range of current applications including: connection of point-of-sale terminals in instances where multidrop lines are not feasible; local distribution of data carried long-haul on packet-switching networks through connection of the radio modem to a CCITT X.25 pad; and in-plant telemetry for manufacturing process control.

Radio-area networks can also come in handy in areas where telephone service is poor. For example, when Texas Air extended its System One airline reservation system to travel agents in the Caribbean, Puerto Rico and the Dominican Republic, it found itself faced with problems of erratic line quality and long waits for new line installations. The solution: Agents use a radio network to access long-distance circuits in hub cities like Santo Domingo, from which they can access the System One host in Houston.

In another instance, an Indiana newspaper publisher uses a radio network to link its two daily papers, located 18 air miles apart. The company supports two host computers — one for business data, the other a publishing system — and users were competing for access time over two 1,200 bit/sec. leased lines. As the need for data began to impinge on the lines' availability for voice traffic, the publisher replaced one line with a radio network, saving roughly $500 per month and leaving the voice line dedicated for voice.

> RADIO networks are "a technocrat's dream in terms of sexy technology."
>
> DAVID LEVIN
> NETCOMM

A close competitor to Dataradio is Commercial Resources Communications Corp. in Naperville, Ill. The company's Freedom Modem uses X.25 packet-burst technology to provide 9.6K bit/sec. transmission for up to 255 users. Running on the 72-MHz VHF radio frequency, the modems can transmit cleanly over a 10-mile distance. Additional units can be used as digital repeaters to gain even more distance. Each modem costs $1,850.

Ten Commercial Resources' modems are being tried out in handheld terminals on the trading floor of the Chicago Mercantile Exchange. Eventually, all 700-odd traders may be equipped with them. In addition, Compaq Computer Corp. installed the radio modems in its manufacturing facility on test equipment that rotates, which makes wire connections awkward.

Other applications include telephone bypass, remote data acquisition and a direct interface to programmable controllers for industrial control monitoring.

To implement a radio-area network, companies must get a

Federal Communications Commission license and an FCC-assigned frequency of their own and put up an antenna at the optimal height for their area and application.

Netcomm's Levin calls radio networks "a technocrat's dream in terms of sexy technology," but he warns potential customers of real weaknesses in the devices. For one thing, he says, "Any physical connection is more reliable than something propagating through the atmosphere." He disagrees with radio network vendors about how susceptible packet-radio transmissions are to sunspots and weather conditions. "I work with radios a lot, and they are marvelous, but I wouldn't want to depend on it daily for data transmission," he says.

The vendors, meanwhile, tout reliability as one of the benefits of radio. Commercial Resources relies on the carrier-sense multiple-access technology to manage network traffic and uses a 16-bit cyclic redundancy check for error detection and correction. Dataradio, using its own error detection and correction, claims a bit error rate of one in 10 to the minus 11th, which Beeferman calls "essentially error free."

Security hazard

Levin also points to data security as a major barrier for some potential users, particularly if their transmissions include sensitive financial data. "You are broadcasting your data," Levin says. "Anyone can intercept it and even rebroadcast it — without your knowing." Levin says this is not in any way illegal under current case law nor is it restricted by the FCC. Dataradio reports some of its users encrypt their data before transmission for this reason.

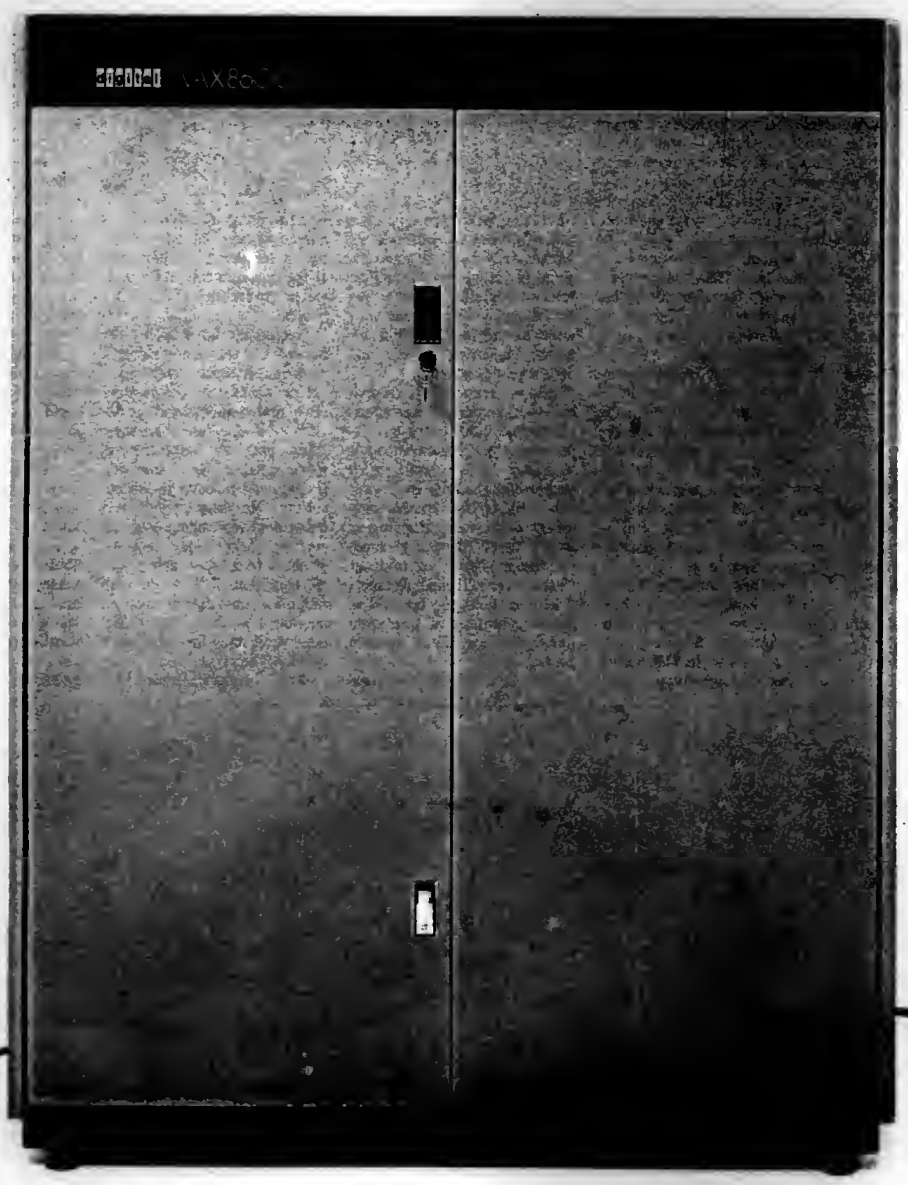
Last, Levin notes some environmental concerns. "Anything that transmits radio frequencies has the potential to exceed FCC guidelines, and that can cause real problems" to the health of anyone working in the area, particularly pregnant women. "It's the same as putting microwaves inside," he says.

One thing everyone seems to agree on is the relatively narrow window this market has to prosper. L. J. Giaramita, Commercial Resources' communications officer, will not make predictions beyond five years, and Dataradio's Beeferman admits ISDN may remove radio's cost advantages.

Levin says it is a "temporary aberration in the market" that makes radio networks cost justifiable and attractive today. "It's viable," he says, "but if bandwidth continues to get less expensive, I question its prospects." •

Fiore is a *Computerworld* senior editor, features.

Macintosh connects with Digital.



Net launches

FROM PAGE 66

is installed as a single-server network for a department. The company uses the networks primarily for printer and file sharing within departments. E-mail is handled by IBM's Distributed Office Support System on the mainframe.

"Eventually, we may integrate some of the networks to optimize server disk space use but not for information exchanges between departments," Bross explains.

First things first

To determine functional specifications, Bross says, "First, we go into a department and conduct feasibility and productivity studies. In this case, our primary justification for the network was sharing high-quality laser printers and setting up a common user interface — we were not necessarily looking for increased productivity."

Southland's determination that all PC LAN use would be restricted to connections within departments and that no communications would flow among departments on the network was pivotal in the selection of a network operating system.

The company's selection of Novell is based on departmental servers rather than organizationwide connections. Interdepartmental communication exists through the mainframe, not the PC LAN. Bross emphasizes the continued importance of the mainframe in providing organizational communications through E-mail, explaining, "We use Irmalan as a gateway to the mainframe on some of our LANs. The gateway maximizes ports on the controller. We like the gateway now over the use of Forte boards."

"WE SOUGHT to be more responsive to user needs. . . . The PC network gave us what we wanted."

DAVID MCNEESE
LOS ALAMOS NATIONAL LABORATORY

Paccar's Balsiger echoes Bross's view of the advantages and economics of mainframe connection through a gateway on the LAN. "We have gateways to the 3270 giving us shared resources using the networks," Balsiger explains. "I can have 64 logical units with two sessions per PC and will have four sessions under software we are installing now."

Money in the bank

According to Balsiger, a cost comparison showed that it was more than $100,000 less expensive to install a Banyan Systems, Inc. network with three servers, physical connection to the host and software to maintain four simultaneous sessions to the host on each PC than it was to install host terminals capable of four sessions alone.

"If we want to have more sessions," Balsiger says, "we can add increments of 32 logical units at a cost of about $4,000 for the software, modems and gateway card for a server."

Paccar is using 802.5, the IEEE token-ring standard, with twisted-pair wire as the basis of its system. The main location has one Banyan BNS server and three Banyan DTS servers for a current total of 50 workstations.

Balsiger points out that the servers may be expected to support several times that number of workstations.

At Paccar, the selection of Banyan's Virtual Networking Software operating system, better known as Vines, was made on the basis of ease of upgradability and network administration, Balsiger says. "Adding a

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IBM, Novell hold lion's share of LAN market

Vendor market share figures taken from a sample of 7,500 IBM and plug-compatible mainframe sites with PC, terminal and CPU LANs

INFORMATION PROVIDED BY FOCUS RESEARCH SYSTEMS, INC.
CW CHART

A glossary

The following is a guide to selected network terms provided by Digital Consulting, Inc., a networking consultancy in Andover, Mass.

Access methods: One of two techniques used to enter a shared communications system or gain access to the network for transmission: Carrier sense multiple access/collision detection (CSMA/CD) is an access method where contention is resolved by collision detection; if two stations have transmitted at the same time, they will both stop and send jamming signals to tell everyone a collision has occurred. Token passing is an access method in which a workstation is allowed to transmit only when holding a token.

Amplifier: A device spaced at intervals throughout a network to boost the strength of electronic signals that weaken as they pass through the cable network.

Baseband: A transmission technique or signal in which data from different users are combined in a serial stream for transmission along one common path. In a baseband network, the signals are not modulated, so only one kind of data can be transmitted.

Bridge: A device that permits communication between two local-area networks that have similar protocols. Unlike gateways, bridges do not perform protocol conversion.

Broadband: A transmission technique or signal that allows multiple users to simultaneously share a path. Also permits a variety of information to be transmitted.

Fiber Distributed Data Interface (FDDI): An American National Standards Institute standard for high-speed, fiber-optic LANs. Particularly suited to networks that transmit enormous amounts of data.

Gateway: A device that uses protocol conversion to connect dissimilar communications systems. Provides the translation from one set of protocols to another.

Repeater: A network component that extends or regenerates digital signals, thereby extending the length or interconnectivity of the communications medium.

802.3: A bus-structured LAN (often referred to as Ethernet) based on the CSMA/CD access method. 802.3 LANs have been installed worldwide.

802.4: A bus-structured LAN based on the token-passing access method. Suitable for industrial applications.

802.5: A ring-structured LAN based on the token-passing access method and developed largely from work done by IBM.

Net launches

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user takes only three minutes. When you update the software on Banyan, you don't have to go to each machine and update the paths like [you do with] Novell.

"Installation of new Banyan software is done by answering four [performance] questions. 3Com took 50 questions and four hours. Novell took about two hours," he says.

Another functional standard that ranks high for many organizations is easy connection, and, in most instances, this means looking for the most generic solution possible. Movement to new, all-encompassing operating systems, especially OS/2 and its attendant, Microsoft Corp.'s LAN Manager or IBM's LAN Server, is still an open question in most organizations. But adoption of established standards is clearly encouraged.

"Make sure you have the standards and don't deviate from them," says Rick Booth, supervisor of end-user computer services for North American corporate banking at the The Bank of Nova Scotia in Toronto.

The bank is a $71 billion — Canadian dollars — institution with more than 1,000 offices in more than 40 countries. "If you accept as a requirement universal corporate connectivity, then you have to have one, and only one, standard. If this is not possible, there will be an excluded area or an eventual throwaway of the nonstandard," Booth says. "You have to design networks for use over a period of time. You're not going to throw out the network. You're looking for a strategy that is more universal in nature than departmentalised. The network is the fundamental building block."

Emphasis on standards also provides greater variety in selection of products and even encourages vendors to actively promote interconnection.

An important area to explore is the need for communications among work groups, departments, divisions and other layers of the organization that might have physically distinct network systems. The goal is determination of both gateway and network operating system needs.

"We were most impressed by their commitment to standards," says Tim Crowell, vice-president of the trust department's LAN group at First Republicbank Dallas NA, explaining why the statewide banking corporation chose 3Com Corp. as a corporate standard. "We liked the idea that they wanted to stay generic. We wanted one workstation to be able to get to anything — mainframes, minis, micros. We have Amdahl, Wang, Prime and Microdata. The trust department was growing so rapidly that

Continued on page 74

"OUR primary justification for the network was sharing high-quality laser printers and setting up a common user interface."

LIZ BROSS
SOUTHLAND CORP.

Growth potential depends on operating systems

Familiarity with the ins and outs of various vendors' local-area network operating software is vitally important for a network planner. At the moment, achieving that goal is not out of the question because only three companies — 3Com Corp., Novell, Inc. and Banyan Systems, Inc. — dominate any discussion of large personal computer LAN operating system software. Other companies are beginning to enter the fray, however, and it may be helpful to isolate a single key point of difference, such as how objects are tracked within the network, for examination.

The method a network operating system uses to keep track of the objects — users, physical devices and files — attached to it is particularly pertinent to a discussion of PC network growth, because it is this method that determines whether an operating system is capable of managing a large and diverse population. Smaller PC networks can keep up with all their object components simply by describing where they are and by tracking according to pathways.

When networks grow to a certain size, however, this method becomes extremely complex and another kind of system is needed. The most workable methods are based on the "clearinghouse" concept developed a decade ago at Xerox Corp.'s Palo Alto Research Center.

One of the current big three companies, Westboro, Mass.-based Banyan, has specifically designed its products for the larger, corporatewide system. The most important feature offered in assuring Banyan's position is its software, Virtual Networking Software, better known as Vines. Vines Version 3.0 is currently available.

Vines keeps track of objects — physical devices, users and information — in the network through Streetalk, a naming system based on Xerox's clearinghouse concept.

By any other name

Every object in the network is known by a name. The physical location of each object is maintained within a file system — the name server or clearinghouse are generic descriptions for such a file system. Every device on the network queries the clearinghouse for the location of the object. What makes the Banyan Streetalk version distinct from the original Xerox model is its distribution across a number of devices on the network.

In a classic clearinghouse system, the failure of the clearinghouse server would bring down the network because there would be no way to find objects. But Vines distributes the service over many servers and thus avoids such failure.

In contrast to Banyan's emphasis on the total organization, 3Com in Santa Clara, Calif., emphasizes the work group as the center of PC LAN design. 3Com also bases the identity of objects on a clearinghouse; 3Com's term is name server, but current versions of the software, 3+Name, must be located on a single machine in each physically distinct 3Com network, otherwise naming ambiguities and conflicts may appear. Thus, the failure of the single name server on a 3Com 3+ network brings everything to a halt because no objects can be found.

3Com representatives say the company is currently working on a solution to this single point of failure problem and expects to deliver a fix soon.

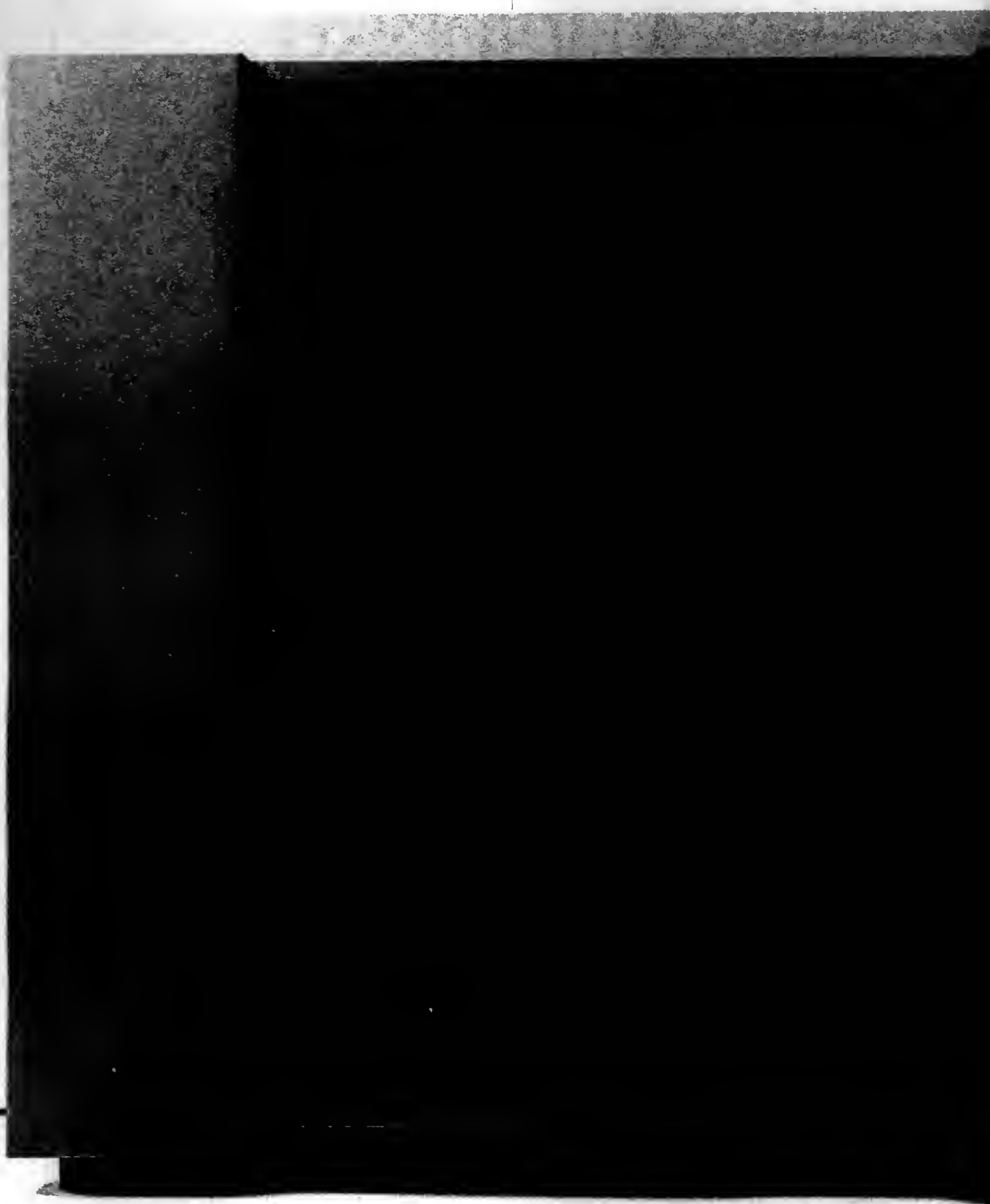
The remaining member of the current ruling triumvirate is Orem, Utah-based Novell, which also happens to be the leader in fault tolerance for PC LAN equipment. Novell's primary offering is Advanced Netware/286 Version 2.1. Its major marketing advantage has been the promise of maximum performance together with finely graded access rights from file servers. System fault tolerance (SFT) is one more major feature important for large networks.

SFT is being offered in three stages. Level 1 examines a server disk during operation, detects failing blocks, copies information stored there to a better area and spares the failing blocks. Level 2 uses two disk drives on a server to mirror one another with one taking over for the other in the event of failure. Level 3, which has not yet been delivered, will provide mirrored file servers.

Although its emphasis on fault tolerance is likely to appeal to large network users, Novell also has one primary weakness in terms of meeting the expectations of that same user group. Novell's software is essentially tied to each file server. The identity of physical devices, users or information within the network is described by pathways unique to each server. This means that even a simple change in resources on the network — the transfer of a few files from one server to another or a shift in printer connection — could require the reconfiguration of countless programs containing the physical pathways to the objects. Informal conversations with company representatives indicate that Novell is considering providing a universal naming system based either on the clearinghouse naming structure or the Open Systems Interconnect X.500 protocol.

JAMES BRYCE

Macintosh connects with personal computers.



Macintosh connects with not-so-personal computers.

Net launches

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everyone had to pull cable to new locations. The network replaced all the terminals in addition to performing the usual PC applications. When Bridge Communications [now merged with 3Com] showed us they could connect to all the other machines, that was the key that really sold us."

At Los Alamos National Laboratory, however, McNeese made the decision that higher performance was more critical than adherence to an industry standard. McNeese, who selected Proteon, Inc.'s Pro-Net 10, a 10M-bit token-passing ring, says he based his selection of Banyan operating system software largely on the laboratory's need for enterprisewide connection and communications.

Given the input and output of users, the laboratory researched the specifications of available products along with emerging standards for the physical protocol for communications. The token ring was chosen, but performance weighed against the existing 4M-bit standard. "The statistics presented at a DEC show demonstrated the 10M-bit 802.3 [Ethernet-like] network would outperform a 4M-bit token ring [the 802.5 standard] anytime. But a 10M-bit ring with high network loading will outperform both," McNeese says.

Los Alamos has 300 nodes with a half-dozen heavily used data bases. Connection between departmental networks is through a broadband system. An RS-232 port is established on a Banyan server; this is connected to a black box RS-232-to-RS-422 converter and then to a radio frequency modem that attaches to the general laboratory broadband network. The cable is shared with video and other signals. Since most of the communications are within departmental networks, and Banyan servers acting as bridges are intelligent — they send traffic to the backbone only when stations are addressed outside the immediate network — broadband traffic is minimal.

Network physical structure — whether it should be Ethernet-like or a token ring — has

"END USERS can't get the effectiveness and efficiency they want if they follow mainframe rules."

RICK BOOTH
THE BANK OF NOVA SCOTIA

been the subject of countless articles, debates and sleepless nights. Ironically, this choice is probably not as critical as many have thought. Planners in large installations have selected either one or the other, and each is perceived to perform well.

At GTE North, for example, the primary network consists of PCs using 3Com Etherlink network cards and various versions of 3Server. Cabling is "thin Ethernet" coaxial, which is a small, light, flexible cable rather than the heavy, inflexible ones in the original 802.3 design specifications. The other 12 locations have a total of 1,800 PCs on similar networks using a total of 106 servers and terminals.

There is a cable segment for each department with a backbone connecting it all. Repeaters connect the segments, but there are no intelligent gateways physically separating any portions of the network.

According to Lively, that means all packet traffic appears throughout the network all the time, so the installation works like a "worst-case" example of a carrier sense multiple access/collision detection network.

Still, he says, performance is excellent. "We have not had a diagnostic device installed, but we have not observed any slowdown from traffic," he says.

After wants, needs and assumptions have been translated into functional specifications and matters such as standards, operating system and physical architecture have been resolved, there are still two major control issues remaining: network management and security.

Even a small LAN will not run itself, and larger PC networks are complex systems that require people dedicated to maintaining their usefulness.

Establishing training, policy and effective management for an on-going network are continual processes. First Republicbank's Crowell is creating an elaborate management system for the organization's three-building network. One element of the management system is a policy that mandates removal of any data files that have been on a server for more than two months without being opened. Crowell's staff uses a diagnostic tool to find those in violation and requests their removal.

So far, he says, users have cooperated in this housekeeping chore. "We have not forced removal," Crowell says. "Most of this is education."

Other accountability measures include employment of a resource utilization tracking program created in-house to audit network activity as well as shell programs that overlay the logon process and force people to change their passwords on schedule (see story page 78).

Probably the most difficult balancing act in the whole process of planning, installing and

First Republicbank's Crowell

managing a PC network is finding an equilibrium between users' desires to access all the organization's information and the organization's need for security.

"Before [exploring] the possibility of connecting a mainframe to a PC network," says Booth from The Bank of Novia Scotia, "management tended to view PCs and PC nets in the same way — as a never-never land, not a grave risk. People in the mainframe environment have taken great steps to protect the mainframes. Then they attempt to apply the same protection to the PC world. This restricts the users on PCs more than they are used to. Resolution of this is still up in the air. The end users can't get the effectiveness and efficiency they want if they follow mainframe rules."

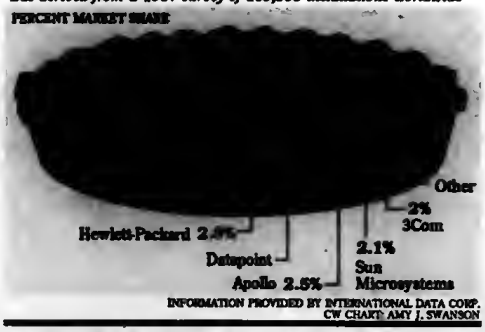
Initially, the most critical decisions facing any large organization looking for a comprehensive, enterprisewide PC LAN solution are selection of the network media access technique together with its attendant cable system and the network operating system.

These define the bank's fundamental building blocks discussed earlier. Once these initial blocks are in place, users' applications must be considered, and ongoing management of the network as a technological system and a collection of people communicating begins — and never ends.

Early adaptation of the techniques of approach honed in large systems development will substantially increase effectiveness and decrease costs. •

Apple's pie

Estimated vendor market share for non-IBM-compatible PC LANs was derived from a 1987 survey of 169,395 installations worldwide



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CW CHART: AMY J. SWANSON

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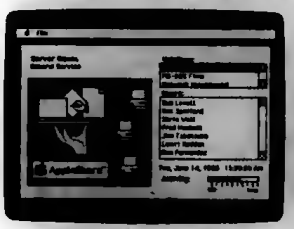
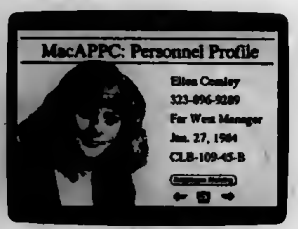


Multiple levels of file security and MS-DOS interoperability are just two of the many virtues of an AppleShare File Server.



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Make security a priority at start of LAN installation

Creates protected, as well as productive, network

BY SANFORD SHERIZEN

LAN may mean local-area network to communications and data processing professionals, but "limitless access nationwide" is what it typically stands for among those people concerned with protecting information.

LANs do not have to be a security liability. The fact that they often are is not because of any inherent characteristic of the network but rather because serious consideration of security is often postponed until long after installation.

By that time, so many essential network decisions have been made that security almost inevitably becomes an inadequate add-on.

An organization establishing a LAN should not leave itself unprotected. Security must be considered from the outset, even though it will add to the various complexities of installation.

The planning stage

In planning the installation of a LAN, it is wise for a company to start by taking the broadest possible view of security management.

Instead of focusing on individual safeguards such as password protections, call-back modems and individual encryption devices, attention should be concentrated on the larger issues of how to regulate a distributed network system with centralized management controls.

The key elements of network security are identification and control of information flows. Network security must ensure that all of those participating in a transaction have been correctly identified, and all data being transmitted from one system to another must be controlled to restrict modification, disclosure, replay or loss in the network.

Main objectives

The essential security management tasks, which should be performed in conjunction with the LAN planning and installation process, include the following:

• **Establish access rules.** Network access security is the prevention of unauthorized people gaining access to the network and its data. Unauthorized access can occur through another computer system attached to the LAN via a gateway or by a remote personal computer dialing in via a modem.

Access rules determine who the authorized users are as well as what activities they are and are not authorized to perform. Decisions about access authorization are usually based on a variety of managerial considerations.

Often, these issues are political in nature. For instance, some department managers feel that all their employees should have open access to the network, but that kind of sweeping authorization can undercut security and cut off individuals whose needs are more legitimate.

Managers must learn to make hard decisions as to who really needs what type of access. Managers should also be held responsible for any security breaches and violations if they do occur in their individual departments.

One rule of thumb is that the greater the access allowed by managers, the greater the number of technical restrictions that will have to be imposed by a company in order to keep outsiders out and authorized users within the established bounds.

• **Decide where to place controls.** Making this decision entails analyzing all the risks and vulnerabilities that could affect the network. Both passive and active attacks should be considered.

Passive attacks can involve people simply watching network traffic, monitoring how often the system is in use and how many people are using the system and reading various messages. Passive security breaches are dangerous because the network manager does not know they are happening.

Active attacks are actual attempts to gain access to the network to commit an unauthorized act, such as manipulating or copying data. Once the points of possible vulnerability have been established, the next step is specifying which nodes or files can and should be accessed by which users.

Every point of entry must have an access control label that identifies its security class and method of access. Auditability must be assured by user identification and authorization levels as well as access attempts.

> TESTING, IN ORDER to be effective, requires thinking like a wrongdoer and exploring all conceivable ways that a LAN could be misused.

• **Assign security responsibilities.** Someone must be actively responsible for ongoing monitoring of network use and detection of unauthorized activities.

Network security falls under the purview of many people. While all employees using and administering the LAN should shoulder responsibility for security in their own individual ways, MIS usually takes charge. The telecommunications manager may want to be involved, too.

Because of the potential battle for control, the best way to handle assigning security responsibility is to take a team approach. Involve MIS, telecommunications, computer security and auditing staff. Most important, never allow just one person to be in charge — that is the kiss of death for any security system.

> NEVER ALLOW just one person to be in charge of security — that is the kiss of death for any security system.

The designated team should be able to strike a balance between production and protection — you want not only a productive LAN but a protected one as well.

In addition, the company's security staff should periodically do risk-analysis reports and security-impact statements so that network security is not static but rather is a constantly changing as well as improving setup.

End users should also be charged with a certain degree of security responsibility. MIS and other network security personnel should impress upon users the importance of keeping passwords to themselves and logging off their computers at lunch time and also at the end of the workday.

The installation stage

The perfect time for network or computer criminals to gain control over a network is during installation.

With the rush to come in on schedule and the anticipation of completing the project, this is a time when security can be quite loose.

Therefore, during installation, a company should carefully protect equipment, documentation and sites. Keep all unauthorized people off the system and away from the installation area.

In addition, there are several specific security steps to take during installation:

• **Check security functions.** Does the network being installed have essential access control and security monitoring features such as automatic audit trail creation; preconnection authorization checks; transmission confirmation and validation facilities; data classification according to levels of sensitivity or source; and preventive controls over theft or physical damage?

These features are built into some LAN equipment but not all. Many systems come with security options, but there may be additional programming work to be done by in-house staff.

Be sure to check with vendors as to what the level and cost is of their built-in security features.

Also, if equipment does contain security features, don't rob yourself of their value by turning them off for convenience during installation and forgetting to turn them back on when the network is up and running.

• **Coordinate communications and security controls.** Wherever possible, network security controls should be integrated into network communication controls.

Make sure there is integration of encryption and message authentication for data security in addition to any communication error detection and correction.

Review the adequacy of authorization and access controls available to determine whether or not an individual, once allowed access to the network, is authorized to access particular network resources.

This includes access-handling systems such as volume and record locking. If any of these features are not built in to the system, find out how to add them.

A couple of important controls, typically not built into network equipment, are call-back routines and terminal identification. These techniques are used to determine if a user requesting access through a dial-up port is authorized.

• **Balance ease of use with security controls.** Security measures must be designed in a way that will encourage user compliance.

Specific access control safeguards such as logon security, passwords, physical access controls — terminal lock and key, card-reading devices or biometrics — and terminal identification are of no help if they are ignored or circumvented.

It is important, therefore, to strike a balance between absolute impregnability and user convenience.

With passwords, for example, this means making the construction complex enough to frustrate guessing by outsiders but not so cumbersome that users will be tempted to write their passwords down.

Testing

The job isn't over for a company until the strength of the security system has been tested in a fully installed setting. Testing, in order to be effective, requires thinking like a wrongdoer and exploring all conceivable ways that a LAN could be misused.

Possibilities for testing include: trying to gain access above an approved level; trying to use an unauthorized device on the system without detection; and trying to replay a previous data transmission such as a money transfer without detection.

In addition to these system tests, several other checks of security procedures are advisable. One example would be to review public bulletin boards to see whether the company's access codes and telephone numbers are listed or whether the type of LAN you have installed is being analyzed in any of these forums from a hacker's point of view.

LAN planning, installation and testing are complex activities. Security only makes it more complex. Nevertheless, if these minimal security considerations are raised prior to and during installation of the network, "NET" could stand for "not easy target." •

Sherizen is president of Data Security Systems, a computer security consulting and training firm in Natick, Mass.

PC productivity labeled 'good enough' by end users

Vendors' extravagant claims were — in some cases — literally justified by their products

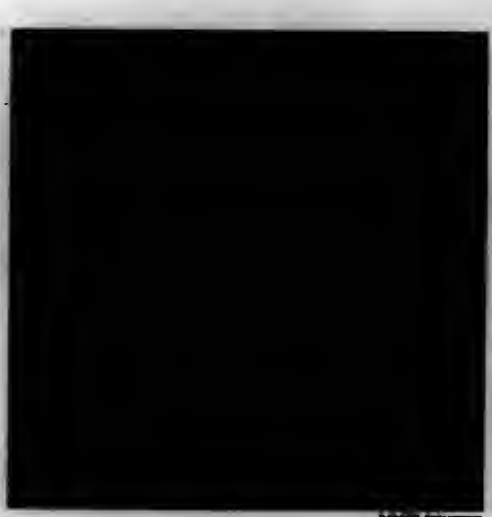
BY ALAN RADDING

How well do personal computer software packages stand up to their own productivity claims? Can PC users point to specific gains from the applications they buy? And do they need to in order to cost-justify their purchases?

Computerworld asked 10 end users to judge different PC packages against the vendors' productivity claims. Could the applications stand up to their own advertising rhetoric? And if they delivered some productivity improvement, how did it benefit the end users?

In general, the users questioned felt they did gain significant productivity help from their software purchase, although many could not quantify the benefits. Since these products are typically inexpensive, users were not pushed to justify the expense with a detailed cost-benefit analysis.

R&R Relational Report Writer is marketed by Concentric Data Systems, Inc. in Westboro, Mass., for use with Ashton-Tate Corp.'s Dbase. Advertisements for R&R promise users can "create Dbase reports in half the time without programming, or your money back." That promise, says Barry Gerken, Concentric Data's vice-president of marketing, is based on surveys of users and reviews in the computer trade press, which reported speedups of up to 10 times. "Depending on the complexity of the report, you can save hours or days," Gerken says.



ROBERT WISNIEWSKI

One user's experience confirms it. "R&R lets you generate reports in a fraction of the time it would take using Dbase III Plus," says Cary Prague, assistant director of finance at The Travelers Corp. in Hartford, Conn. "R&R requires much less knowledge of programming."

Prague's department owns 20 copies of the package. He did a study to determine productivity and found that "what took me six hours using Dbase, I did in one hour with R&R."

Sidekick Plus. "There are stacks of productivity software you can buy for your PC. But to work smart, you only need one — Sidekick Plus," says the advertisement for Borland International's eight-function desktop management program. But Borland does not specify exactly what productivity gains Sidekick produces, except to note that "to add all the productivity applications in Sidekick Plus separately, you'd spend hundreds of dollars." Sidekick Plus retails for $199.95.

Steve Mann, now a business software evangelist at Apple Computer, Inc. in Cupertino, Calif., started using Sidekick as a free-lance computer consultant. He bought the program primarily for its calendar function. "Before I used Sidekick, I did scheduling on paper — a pocket organizer with a section for phone numbers," he says. The automated solution, by comparison, is faster, more convenient and more comprehensive. "I go to it every 15 minutes. It runs my professional life," he says.

"I save 10 seconds or more every time I make a call, and I probably make 40 calls a day," Mann estimates. While that savings does not free enough extra time for a round of golf, he says, it makes his workday easier.

About the only drawback Mann finds, when compared with the paper method, is that Sidekick is not portable in the way a pocket organizer is. "I'll be sitting in a meeting and someone will want to schedule another meeting, but I don't have my calendar in front of me," he says.

Multifinder is Apple's answer to users' complaints about the single-task limitation of the Macintosh. The program, available as an operating system upgrade, allows Mac users to switch between applications without having to close one program and boot up another.

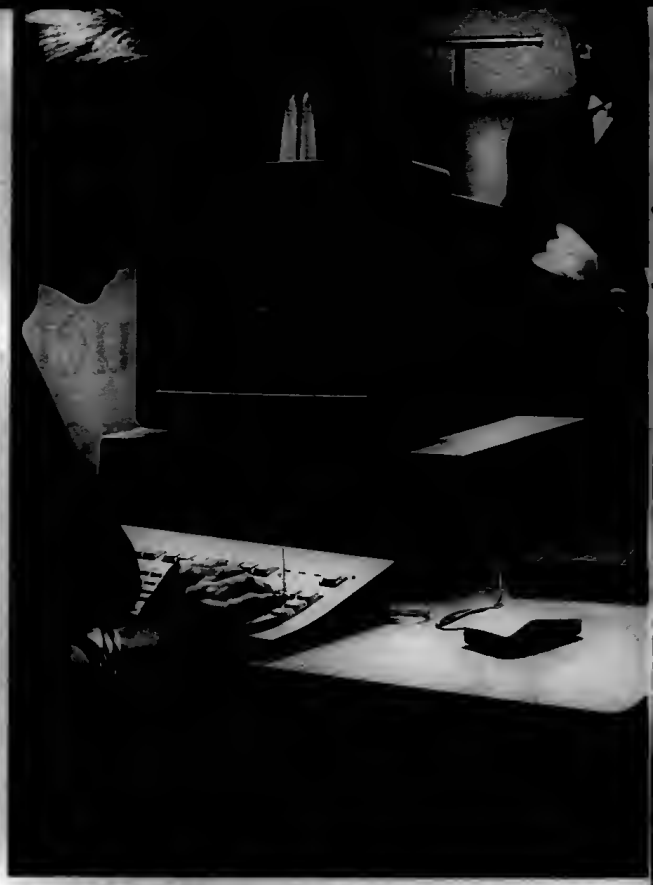
Multifinder also allows some programs to run in background when the user is working on another. According to product literature, Multifinder "extends the power of the Macintosh."

"One of the biggest things I do with it is print something in background while I am working on other things," says Phil Ressler, a field service representative at Nantucket, Inc. Otherwise, he says, "The only way around [waiting] would be to spend $2,000 on a spooler for a laser printer."

Ressler says he will invest more money in his Mac now that he has Multifinder, upgrading the memory so he can keep more programs on-line at once. Currently, he jumps between two or three applications. "I'm able to do about 25% more than before. When I have more memory and

Radding is a Boston-based author specializing in business and technology.

- **10 products; 10 end users**
- **A vague impression of better productivity**
- **Sidekick, Multifinder, report writers tested**



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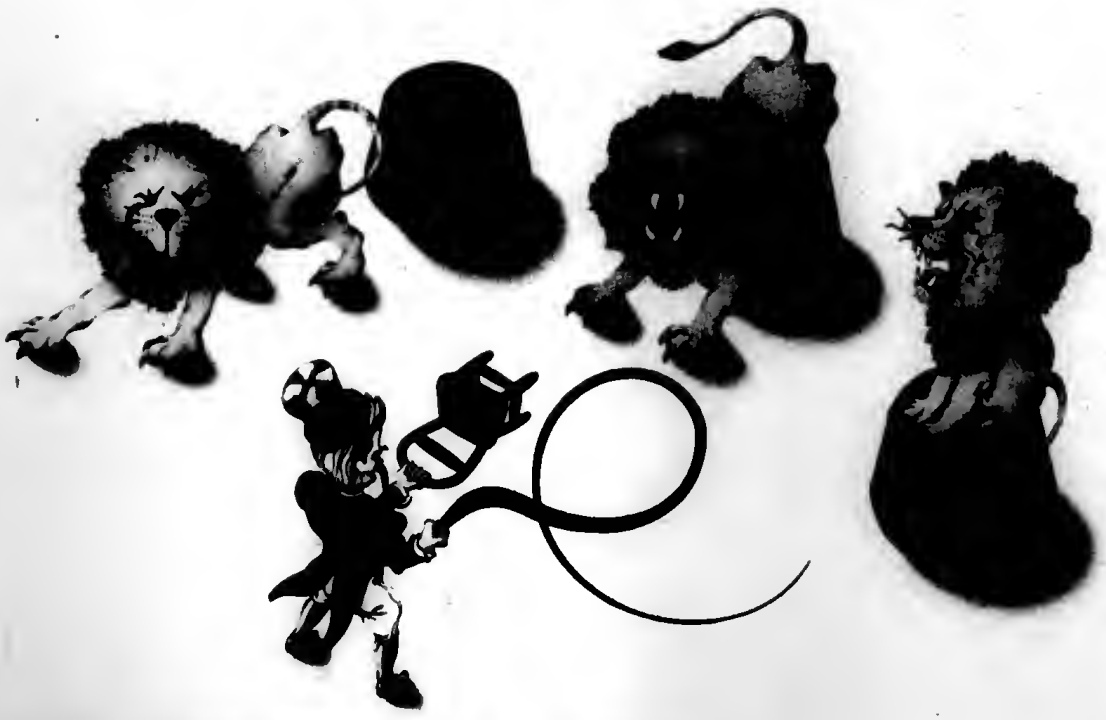

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more applications that support background printing, I figure I'll be able to double what I do," he says. The time he is saving is put back into doing more and better work. As Ressler says, "It gives me more time to think about what I'm doing."

Worksheet Utilities from Funk Software, Inc. in Cambridge, Mass., offers extra functions for use with Lotus Development Corp.'s 1-2-3. The program plugs itself as a productivity tool because it "saves time for the average 1-2-3 user," says Jim Kinlen, marketing director. He is cautious about predicting specific productivity gains because so much depends on the user's degree of expertise with Lotus. The more extensively one uses Lotus, the bigger the potential gains, he says.

Hugh McLaughlin, assistant professor of finance at Bentley College in Waltham, Mass., is particularly pleased with the work sheet identification function of Worksheet Utilities. "The eight-digit DOS name is not sufficient" to identify a spreadsheet file in a directory, he says.

McLaughlin, who teaches spreadsheet methodology for financial analysis, is buried in hundreds of 1-2-3 files spread over dozens of disks. With the Funk program, he can "peek quickly at a spreadsheet," he explains, and see enough to know whether it is the one he wants.

Prior to using the program, McLaughlin says, his volume of files overwhelmed the directory and subdirectory system he used. He spent up to an hour trying to find the right file. With Worksheet Utilities, if McLaughlin can identify the disk, he can find the right spreadsheet in moments.

Formworx is a product of Formworx Corp., also in Waltham. The company's advertisements promise "two ways to streamline your forms processing. Save time. Save money." Without elaborating, Formworx claims the product is "the fastest and easiest forms generator on the market."

Formworx President Ming Lee cites published reports that claim corporations spend $20 million or more per year on form filling and retrieving, saying this figure illustrates the scope of potential savings.

Ed Mead, senior systems analyst at the Massachusetts Department of Mental Health in Boston, installed Formworx about a year ago. "A state agency gets delirious over anything that creates forms," he says.

Before buying Formworx, the agency created forms manually — cutting, pasting and typing. Today, the agency owns six copies of Formworx and has dropped manual forms creation completely. Mead has not measured actual savings, but says, "We are getting better forms.

FORMWORX CORP. claims its product is "the fastest and easiest forms generator on the market."

They look nicer. They're harder to fill out wrong." People in the department are trying out Formworx on new applications, Mead reports. "I guess we could live without Formworx, but not happily," he says.

Lettermaster from Research Development Systems, Inc. in Arlington, Texas, promises to "beat the clock" in the assembling, sorting, merging, purging and printing of mailing lists. According to advertisements, "About the only thing it doesn't do is lick the envelopes." The ad shows a complete mailing being assembled and printed in 30 minutes before a deadline.

"I can get out 1,000 form letters with four key strokes," says Bob Dilg, company president, although he would need a very fast printer to complete such a mailing in the half-hour example shown in the ad.

At Chrina Corp. in Dallas, Lettermaster is not aimed at mass mailings but is used as a complete client tracking system, reports Jeff Farris, senior vice-president. Chrina is a local-area network provider. Farris and his colleagues use Lettermaster to

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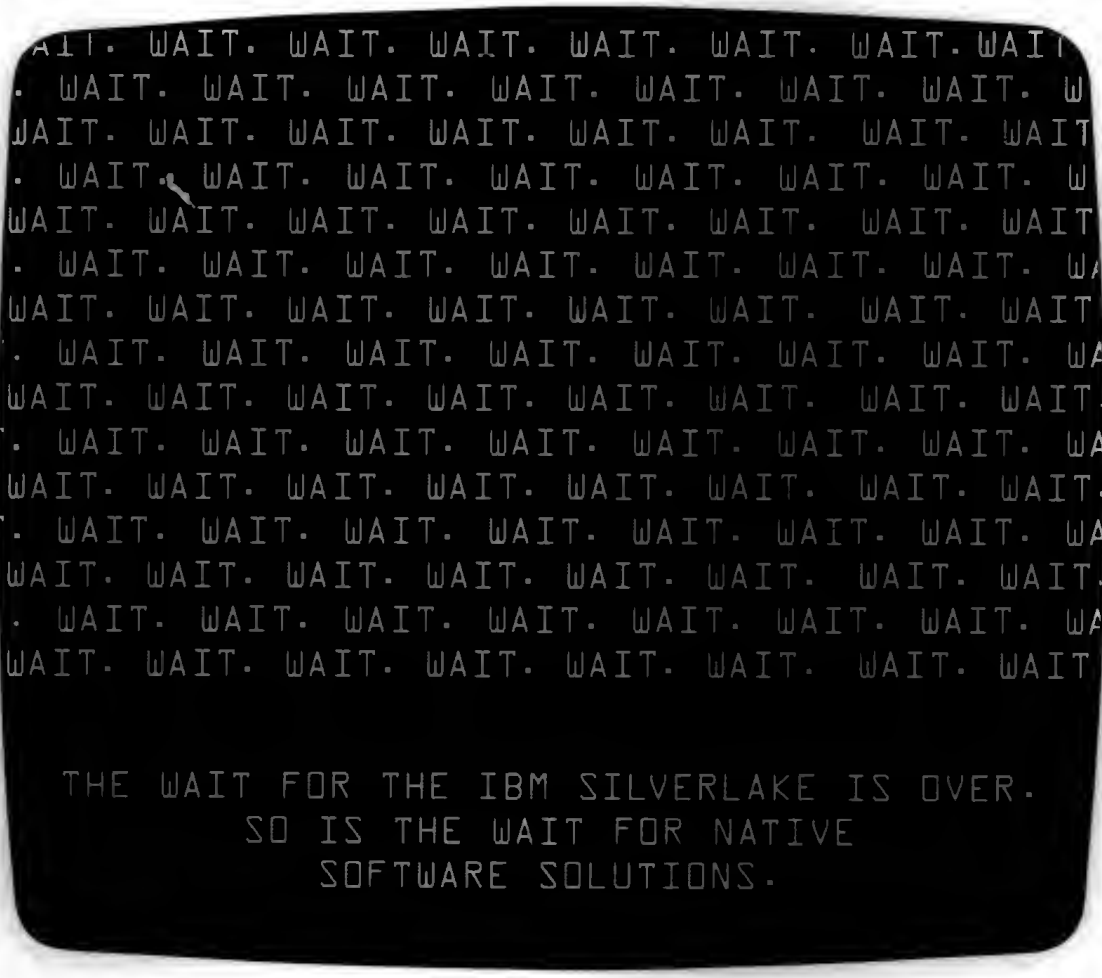

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keep track of all contacts they make and to schedule follow-ups, particularly for sales. The program is a "repository of every conversation," Farris says.

Farris says he now has better information at hand when making and taking calls. He says follow-up is more organized, and no contact is falling through the cracks — a major accomplishment in itself.

C-A-T from Chang Laboratories, Inc. in San Jose, Calif., is a sales-call tracking system for the Macintosh. Advertising for

> "THE CHOICE is to be overwhelmed and swamped or get a handle on the job" with the help of C-A-T.
>
> JIM LOMBARDO
> MCLAUGHLIN, PIVEN, VOGEL, INC.

C-A-T — an acronym for contacts, activities and time — claims it will double users' productivity. "If handling twice as many contacts would double your success, then you need C-A-T," it says.

The company would not provide any statistical basis for that claim. Instead, Vice-President Joseph Ng simply says C-A-T users "find it addictive. They use it six to eight hours a day."

Jim Lombardo, vice-president at New York-based McLaughlin, Piven, Vogel, Inc., is a constant user of C-A-T. "I use the program thoughout the day," he says. Before using the program, Lombardo says he kept four 3-in. thick spiral-bound notebooks on his desk to track the status of every person he contacted.

Lombardo talks to dozens of clients and prospective clients each day. "While I was on the phone, I would be shuffling books around and flipping through the pages," he recalls. Lombardo maintains 100 very active accounts and makes 1,000 new contacts a year, he estimates. After four years, he found himself juggling almost 4,000 contacts, using note cards and the notebook system.

With C-A-T, he has weaned himself off the notebooks and keeps all the information close at hand on his mouse-based PC.

While he hasn't calculated the direct productivity payback, Lombardo is convinced he is way ahead. "The choice is to be overwhelmed and swamped or get a handle on the job," he says.

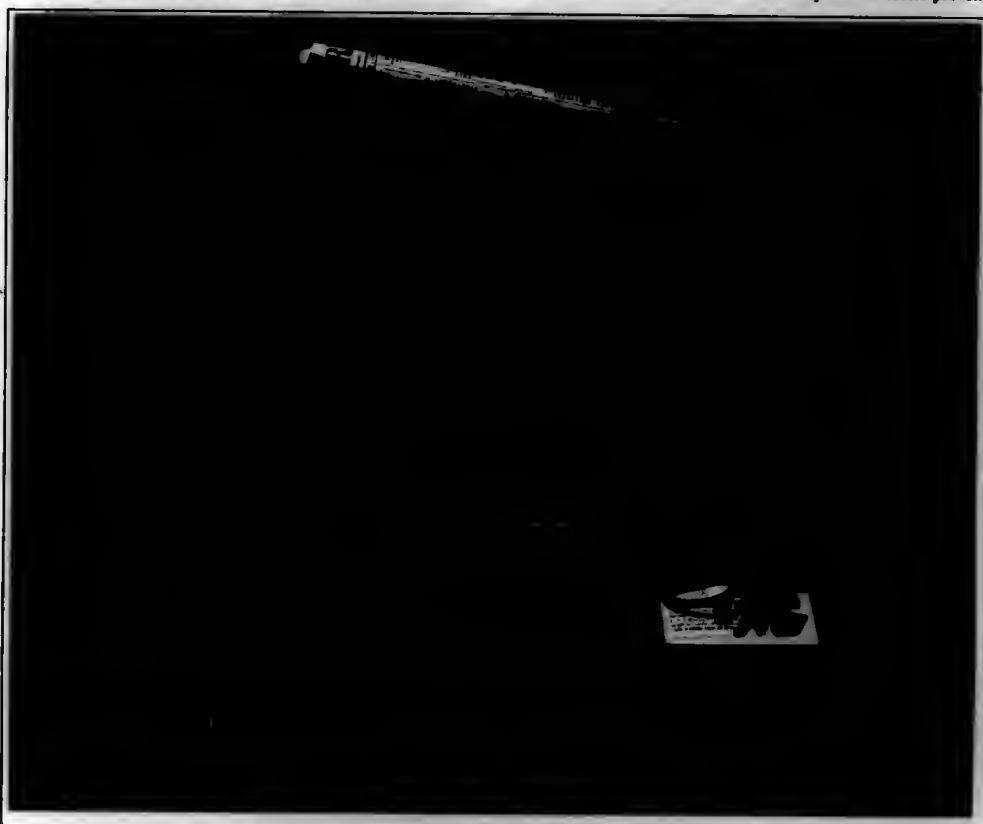
Disk Optimizer from Softlogic Solutions in Manchester, N.H., attacks a productivity issue by correcting a DOS file-management problem. According to Disk Optimizer advertisements, "DOS is constantly slowing your hard disk down . . . because your hard disk has to chase all around to read and write different pieces of your file." Disk Optimizer rearranges files on the disk so that each file is contiguous, leading to faster operation of the hard disk and greater user productivity.

The company also advertises its Analyzer program, which tells users how efficient their hard disk is running in the first place. But how much productivity do users gain from faster disk operations?

Ted Magida, managing partner at Staller Associates in Needham, Mass., ran Analyzer on his 20M-byte hard disk and found the disk operated below 70% efficiency. He then ran Disk Optimizer, which took 25 minutes, and he experienced a "dramatic speedup in operation," he says. According to Analyzer, the disk was running at virtually 100% efficiency.

The savings for each operation are measured in seconds each time files are loaded or saved, Magida says. So even if his staff performs hundreds of disk save-and-load operations each day, the actual gain is relatively small.

But there is a second benefit — perhaps a greater one. The program can prevent cross-linkage problems when file segments are scattered throughout the hard disk. "With DOS, the longer you let it go, the greater number of cross-linkage mistakes occur. Eventually, you'll have serious problems with a file," Magida says. Thus, the productivity gain is not so much added speed as disaster preven-



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TEXAS INSTRUMENTS

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tion. Now Magida runs Analyzer, which takes less than a minute, once a month on all his firm's hard disks. When a disk drops below the 80% efficiency level, he runs Disk Optimizer.

The Documentor, from Wallsoft in New York, promises to increase productivity by eliminating the tedious, time-consuming task of documentation so users can concentrate on applications writing. "We asked users if they had good documentation for Dbase, and we got zero response. They didn't have any documentation because of the amount of time that went into producing it," says Martin Rinehart, a Wallsoft spokesman.

Mark Manis, a senior electronic data processing auditor at New York's Manufacturers Hanover Bank, has been using The Documentor for about a year. Before that, "We did very limited documentation" — or none at all, in some cases, Manis says. "It was too time consuming."

With The Documentor, Manis not only produces the basic documentation but develops flowcharts that are used in preparing user documentation. Three people in the department use the program on a monthly basis unless there is extensive rewriting going on.

Shoebox 1 from R+R Associates in Mount Vernon, N.Y., is "a modest program that can produce significant productivity gains," Vice-President Roland Joffe says. "The program is essentially an appointment calendar, but it is really a time management package." The program can also become a time and billing tool.

Ron Abler, a senior associate at United Information Systems, Inc. in Silver Spring, Md., needed a package to manage time more efficiently. With 10 users accessing the package on a LAN, Abler says Shoebox 1 is one of the handiest utilities he runs. For instance, when a meeting is being set up with a client, Shoebox 1 will search the calendars of all the participating users to find an available time slot. Before he had Shoebox 1; Abler and his associates could not make firm appointments with clients on the spot.

> QUANTIFYING the return on investment for these products is less important than feeling that an annoying situation has been resolved.

Abler has not quantified the productivity gains generated by Shoebox 1 but says his office is running more smoothly. Client meetings are scheduled instantly, without much running around and rescheduling. Abler admits he does not like meetings, but Shoebox 1 at least takes some of the pain out of arranging them. There is one possible drawback: If scheduling a meeting is easier, more meetings might be scheduled. "That better not become a problem," he says.

End result

By and large, the end-users in the survey were not looking for stupendous advances in raw productivity. Rather, they were trying to make specific tasks more manageable and solve particular problems. Quantifying the exact return on investment for these inexpensive products is less important to them than feeling that an annoying, chronic situation has been satisfactorily resolved. Increased convenience alone is often enough of a productivity justification.

For the same reason, product vendors are not held accountable by users for specific, documented productivity claims. It is not a question of whether a product, for instance, saves the user 15 seconds or 30 seconds per phone call. What matters is that the product effectively solves the specific problem or makes a particular chore easier.

In addition, the productivity gains generally did not result in dramatic changes in the users' work lives. The time and effort users saved were simply applied to other tasks. And often the productivity gains amounted to increased convenience rather than substantial savings of time. ●

SCIENCE/SCOPE®

A new air traffic control system for the Federal Aviation Administration will play a key role in helping to meet the growing demand for passenger air travel by making it vastly more efficient. The system is currently under competitive development by a team consisting of Hughes Aircraft Company; Sanders Associates, a unit of Lockheed; and Unisys. The system, called the Advanced Automation System (AAS), promises to be one of the largest real-time computer-controlled systems ever developed. Twenty-three regional air route traffic centers around the nation will receive new equipment, and new computers and automated displays will be installed in nearly 300 airport control towers. AAS will be capable of meeting air traffic control requirements well into the 21st century.

Hughes has earned the 1987 Herschel Award for improving the sensitivity and producibility of infrared detector arrays. The technological breakthrough was achieved by using and adapting a process of liquid phase epitaxy developed by Hughes. Detector arrays make infrared imaging possible for applications such as satellite-generated weather and remote Earth sensing information, and night vision systems for military vehicles. The award is the highest yearly accolade given to an organization by the Infrared Information Symposia Specialty Group on Infrared Detectors.

A Hughes-built probe descending through Jupiter's atmosphere will provide never-before-gathered data on its chemical composition, temperature, and density. The Galileo Mission, to be launched in 1989, will arrive in the Jovian system in 1995 for a two-year tour, after traveling a lengthy route including Earth and Venus fly-bys. The Galileo orbiter will release the onboard Hughes probe into Jupiter's atmosphere. It will descend by parachute, sending its scientific findings to the orbiter which will then relay them back to Earth. The orbiter will continue on its tour and pass within 600 miles of Io, the most volcanic body in the solar system, which pumps more than a ton of ash into space every second.

A high-performance instrumentation radar establishes state-of-the-art fast and sensitive microwave and millimeter-wave measurements. Developed by Hughes, the fully programmable, broadband, frequency- and polarization-agile radar provides the flexibility to make radar cross section and antenna pattern measurements, EW simulation testing, and more. Utilizing Inverse Synthetic Aperture Radar imaging, modular design, and automatic diagnostics, the radar achieves reliable, accurate measurements from 100 MHz to more than 100 GHz. The system can be tailored for indoor or outdoor ranges or in natural environments for measurements of ships at sea or aircraft in flight.

Hughes Ground Systems Group is applying its airspace management experience to the exciting challenges of worldwide air traffic control. These systems will be designed to ensure service 24 hours a day, 7 days a week. They will support distribution of processing among multiple computers linked via local area networks. The many challenges include design and development of hardware and software to support advanced display and man-machine interface technology, and using satellite technologies for future ATC applications. To help design the next generation of air traffic control systems, send your resume to Hughes Ground Systems Group, Employment Dept. S3, P.O. Box 4275, Fullerton, CA 92634. Equal opportunity employer. U.S. citizenship required.

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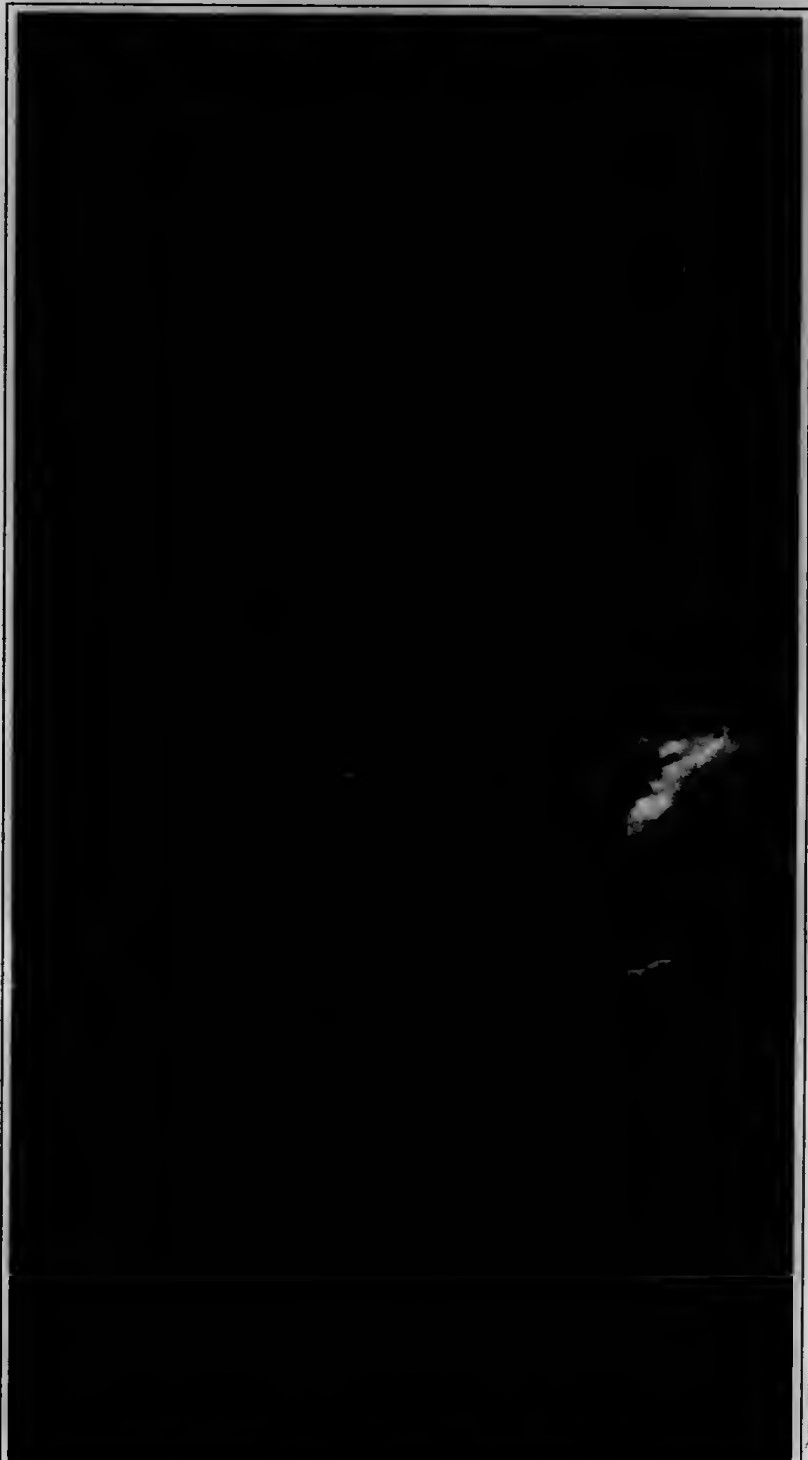

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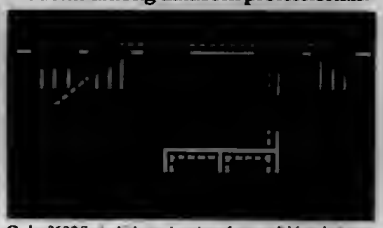

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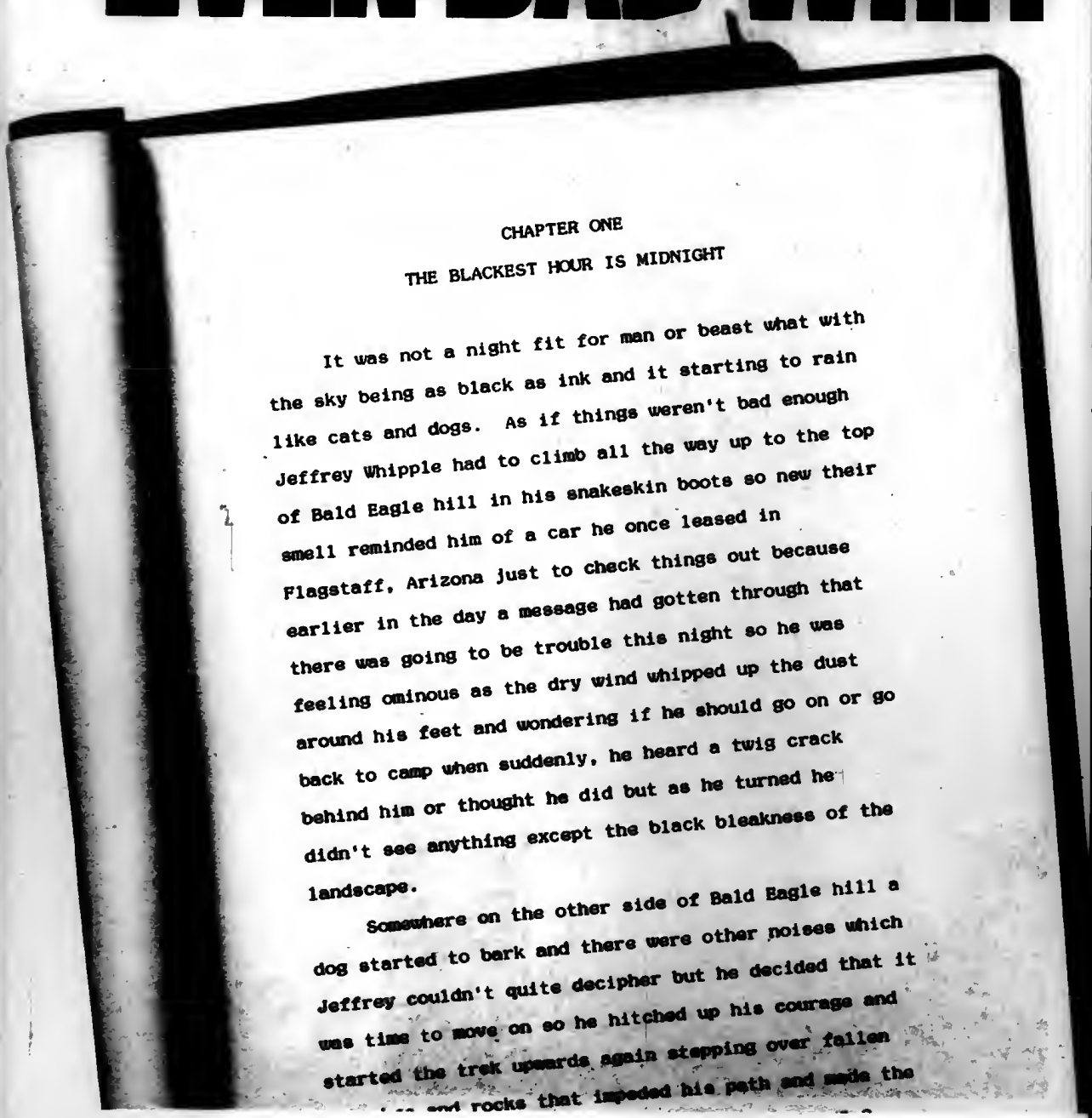

CHAPTER ONE

THE BLACKEST HOUR IS MIDNIGHT

It was not a night fit for man or beast what with the sky being as black as ink and it starting to rain like cats and dogs. As if things weren't bad enough Jeffrey Whipple had to climb all the way up to the top of Bald Eagle hill in his snakeskin boots so new their smell reminded him of a car he once leased in Flagstaff, Arizona just to check things out because earlier in the day a message had gotten through that there was going to be trouble this night so he was feeling ominous as the dry wind whipped up the dust around his feet and wondering if he should go on or go back to camp when suddenly, he heard a twig crack behind him or thought he did but as he turned he didn't see anything except the black bleakness of the landscape.

Somewhere on the other side of Bald Eagle hill a dog started to bark and there were other noises which Jeffrey couldn't quite decipher but he decided that it was time to move on so he hitched up his courage and started the trek upwards again stepping over fallen [illegible] and rocks that impeded his path and made the

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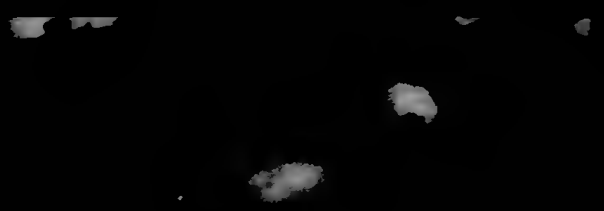

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Mark Klein

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To facilitate conceptualising the information systems organization, executives usually adopt one of three traditional business paradigms — the utility, manufacturing or service company — even though the paradigm may differ from the company's model. Unfortunately, each of these traditional paradigms has serious drawbacks that may constrain the information systems organization.

An information systems organization operating according to a utility paradigm has a central organization with monopoly control over information systems activities. As such, information systems thinks it knows its clients' needs, and because it thinks clients are equally important, it has difficulty prioritizing among them without a committee's help. The utility-model information systems organization usually discourages complexity. Its drawback is that it doesn't encourage innovation or appreciation of information's strategic impact.

In contrast, an information systems organization modeled after a manufacturing company decentralizes information systems activities down to the individual department, with or without central information systems coordination. Complexity is common. Different locations use different hardware and

Continued on page 109

Ryder's team driver

Operations chief at rental firm reaches out

BY DOUGLAS BARNEY
CW STAFF

Twenty years ago, George Perare worked for Ryder Truck Rental, Inc. as a keypunch operator to put himself through college. Now, as Ryder's director of operations technology and administration, Cuban-born Perara remains true to his humble beginnings with a management style that seeks the advice of workers at every level of MIS.

The style, which Perara has dubbed "participatory management," is thoroughly shared by Dennis Klinger, Ryder's vice-president of MIS and Perara's boss.

"We don't talk to him like he's the boss and we are the subordinates. He is kind of one of the group," Perara says of Klinger.

That is the very same approach Perara has established with those who report to him. "I know I can be creative and it will be respected," notes George A. Simmons, operations support manager at Ryder.

According to Perara, simply

Continued on page 103

PROFILE
George Perara

Position: Director of operations technology and administration, Ryder Truck Rental, Inc.
Mission: To use participatory management to give all employees something to strive for.

EXECUTIVE SUPPORT SYSTEMS

Serving top execs: Politics can be deadly

BY DAVID DE LONG
SPECIAL TO CW

Executive support systems (ESS) are an emerging applications area, but building such computer systems for senior management can create a rash of challenging organizational and political issues for developers in MIS. "If you aren't aware of the politics," says Ken Soha, director of corporate executive and office information systems at Xerox Corp. in Stamford, Conn., "you're dead."

ESS — also known as executive information systems — can bring major changes to information flows and communications patterns as top managers use the technology to gain more direct access to information about the firm's performance and communicate via electronic mail outside the normal chain of command.

Fears about the implications of these changes, however, often create substantial resistance among subordinate line-management and staff groups. Anticipating and

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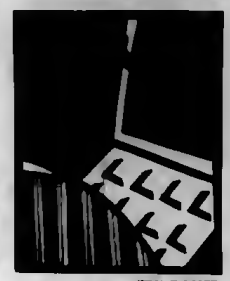

JULIA TALCOTT

Insurance firms wage high-tech war

BY JAMES CONNOLLY
CW STAFF

America's insurance industry giants have moved into the field to engage in their newest computer-based battles.

Asked two years ago about the key strategies in their field, MIS executives talked about downsizing. Two years before that, they spoke of installing personal computers in their organizations. Now, an informal poll of a dozen insurance industry officials reveals a common thread running from company to company: a level of agency-based information processing well beyond the basic agency automation that began in the early 1980s.

"The major difference right now is the telecommunications aspect," says Ray Scutro, a senior consultant at Arthur D. Little, Inc. in Cambridge, Mass. "It used to be just rating information that the agent could get. Now they are getting right into client files."

Insurance companies are building links between host systems and agents, developing marketing packages and experimenting with expert systems in their competition for shares of the business of 45,000 independent agents in the U.S. or, in the case of insurance carriers that run their own sales forces, to maintain the loyalty of those proprietary agents.

The Travelers' Bacon

Competitive spirit

The competition rages in a market in which a carrier that wins a 2% share in any line of insurance is an exceptional success. The competing insurers also acknowledge that they very seldom will be able — or want — to lock up an independent's business the way airlines wanted to capture travel agents a decade ago.

"We recognize that the agent is our customer. From a data

Continued on page 102

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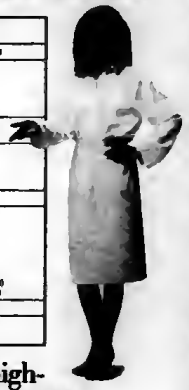
	Model 70 386			Model 50 Z
Available models	8570-E61	8570-121	8570-A21	8550-031 8550-061
Microprocessor	80386 16 MHz 0-2 wait-states	80386 20 MHz 0-2 wait-states	80386 25 MHz 64KB memory cache (55ns)	80286 10 MHz 0 wait-states
Optional Math Co-Processor	80387 16 MHz	80387 20 MHz	80387 25 MHz	80287 10 MHz
Memory (RAM) Standard Maximum on system board System maximum	1Mb (100ns) 2Mb 16Mb	2Mb (80ns) 2Mb 16Mb	2Mb (80ns) 2Mb 16Mb	1Mb (80ns) 2Mb 16Mb
System expansion	Three option slots (two 32 bit, one 16 bit)			Three option slots
Storage 1.44Mb 3.5 inch diskette drives Standard Maximum	1 2	1 2	1 2	1 2
Fixed disk Standard bin	60 (27ms)	120 (23ms)	120 (23ms)	20 (28ms) 60 (27ms) 8550-031 8550-061
Operating Systems	DOS 3.30, IBM OS/2, AIX™ Personal System/2			DOS 3.30, IBM OS/2
Built-in features	Video Graphics Array (VGA) and display port, diskette controller, serial, parallel, keyboard and pointing device ports, clock/calendar.			



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IBM The Bigger Picture

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CALENDAR

Technology in Education: Expanding Teacher Effectiveness. Eugene, Ore., July 7-8 — Contact: Technology in Education Conference, University of Oregon Continuation Center, 1553 Moss St., Eugene, Ore. 97403.

International Cost Engineering Congress. New York, July 10-13 — Contact: American Association of Cost Engineers, 308 Monongahela Building, Morgantown, W. Va. 26505.

Commercial Image Processing '88. Boston, July 11-12 — Contact: Frost & Sullivan, Inc., 106 Fulton St., New York, N.Y. 10038.

Fault Tolerant Computing. Santa Clara, Calif., July 11-13 — Contact: Karin Feldes, University of California Extension, Santa Cruz, Calif. 95064.

National Financial Computer & Automation Conference. New York, July 11-13 — Contact: National Census, P.O. Box 1151, 333 Sylvan Ave., Englewood Cliffs, N.J. 07632.

TI Expo '88. Washington, D.C., July 11-12 — Contact: Teletrategies, Inc., 1355 Beverly Road, McLean, Va. 22101.

Cons '88 International Workshop on Computer-Aided Software Engineering. Cambridge, Mass., July 12-15 — Contact: Pamela Meyer, Index Technology Corp., One Main St., Cambridge, Mass. 02142.

Planning and Selecting a State of the Art Financial Information System. Cambridge, Mass., July 13 — Contact: Laura Manning, Seminar Coordinator, Boston University Metropolitan College, 755 Commonwealth Ave., Boston, Mass. 02215.

SDI Summit Conference. New York, July 13-14 — Contact: The Yankee Group, Seminar Division, 200 Portland St., Boston, Mass. 02114.

Advanced Computer Networking Solutions. Boston, July 13-15 — Contact: Advanced Computer Networking Solutions, Suite 777, 427 7th St., Fairview, N.J. 07022.

Annual Speedaway Conference. Chicago, July 13-15 — Contact: Speedaway Computing Corp., 222 W. Adams St., Chicago, Ill. 60606.

National Office Machine Dealers Association's (NOMDA) Convention '88. Las Vegas, July 13-16 — Contact: NOMDA, 12411 Wornall Road, Kansas City, Mo. 64145.

Guide 71. Chicago, July 17-22 — Contact: Guide International Corp., 111 E. Wacker Drive, Chicago, Ill. 60601.

AM/FM International Executive Conference. Snowmass, Colo., July 18-19 — Contact: AM/FM International, Suite 830, 8775 E. Orchard Road, Englewood, Colo. 80111.

Optical Drive and Media Manufacturing Conference. San Francisco, July 19-21 — Contact: Rothchild Consultants, 256 Laguna Honda Blvd., San Francisco, Calif. 94116.

Parallel Programming: Experience with Applications Languages and Systems. New Haven, Conn., July 19-21 — Contact: Judy Terrell, Yale University, Department of Computer Science, P.O. Box 2158, Yale Station, 51 Prospect St., New Haven, Conn. 06520.

Computer Software: Protecting and Marketing Seminar. New York, July 21-22 — Contact: Practicing Law Institute, 810 Seventh Ave., New York, N.Y. 10019.

IEEE 1988 International Conference on Neural Networks. San Diego, July 24-27 — Contact: Naomi Feldman, Conference Coordinator, 3770 Tansy St., San Diego, Calif. 92121.

Navy Micro/OA '88 Conference. San Diego, July 25-28 — Contact: Code 31.4, Nardac San Diego, NAS North Island, Building 1482, San Diego, Calif. 92135.

Summer Computer Simulation Conference. Seattle, July 25-28 — Contact: Society for Computer Simulation, P.O. Box 17900, San Diego, Calif. 92117.

National Systems Programmers Association Conference. Milwaukee, July 27-28 — Contact: Nespa, P.O. Box 21525, Milwaukee, Wis. 53221.

Optical Storage Solutions: Strategic Applications in the MIS Environment. Colorado Springs, July 27-28 — Contact: The Yankee Group, Consulting Division, 200 Portland St., Boston, Mass. 02114.

SDI Interfunds Conference. San Francisco, July 28-29 — Contact: Input, 1280 Villa St., Mountain View, Calif. 94041.

Computers in Engineering Conference. San Francisco, July 31-August 3 — Contact: American Society of Mechanical Engineers, 345 E. 47th St., New York, N.Y. 10017.

Siggraph '88, The 15th Annual Conference on Computer Graphics and Interactive Techniques. Atlanta, Aug. 1-8 — Contact: Siggraph '88 Conference Management, Smith Bucklin and Associates, Inc., 111 E. Wacker Drive, Suite 600, Chicago, Ill. 60601.

Uniforum/DC. Washington, D.C., Aug. 2-4 — Contact: Uniforum/DC, Suite 205, 2400 E. Devon Ave., Des Plaines, Ill. 60018.

Annual Information Systems Conference: Mapping the Future. Los Angeles, Aug. 7-11 — Contact: Tom Palmerlee, Executive Director, Urban and Regional Information Systems Association, 319 C St. SE, Washington, D.C. 20003.

National Association for State Information Systems Annual Meeting. Arlington Heights, Ill., Aug. 7-11 — Contact: National Association for State Information Systems, Inc., P.O. Box 11910, Lexington, Ky. 40578.

Interex, North American Hewlett-Packard Business Users Conference. Orlando, Fla., Aug. 7-12 — Contact: Interex, Conference Department, 880 Almanor Ave., Sunnyvale, Calif. 94086.

World Congress III, Computer-Assisted Valuation and Land Information Systems. Cambridge, Mass., Aug. 7-12 — Contact: Sarah J. Zabriskie, Lincoln Institute of Land Policy, 1000 Massachusetts Ave., Cambridge, Mass. 02138.

Trail Users Group Meeting. Cambridge, Mass., Aug. 8-9 — Contact: Intex Solutions, Inc., 868 Washington St., Wellesley, Mass. 02181.

Structured Development Forum X. San Francisco, Aug. 8-11 — Contact: Ted Michels, LLNL, P.O. Box 808, L-308, Livermore, Calif. 94550.

Macworld Expo. Boston, Aug. 11-13 — Contact: Mitch Hall Associates, P.O. Box 880, Westwood, Mass. 02090.

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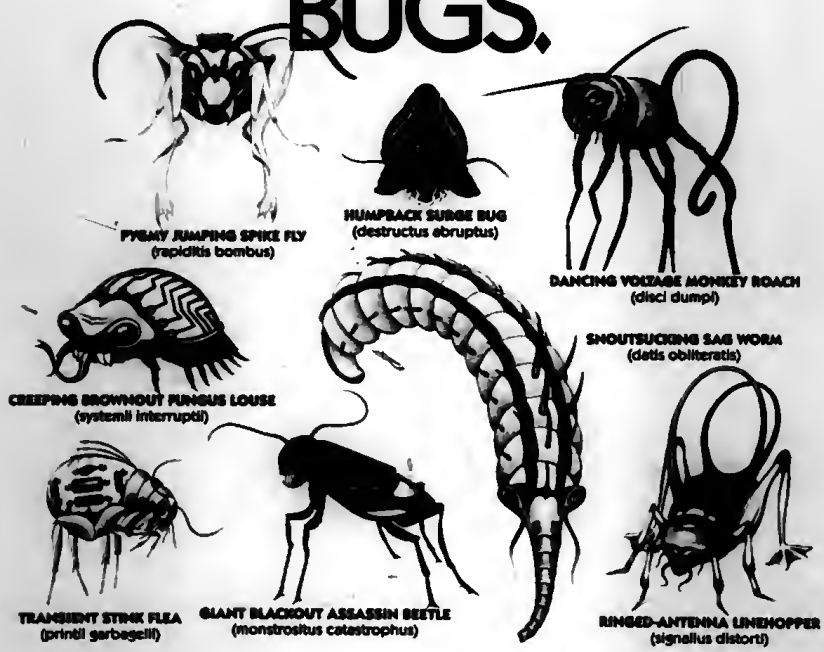

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— Crista Martyr
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Realistically, Leasametric Data Communications of Foster City, California, is many companies rolled into one. Along with being a major equipment-rental company, the 25-year-old Leasametric also leases, maintains and sells personal computers, peripherals and networks.

With so much going on in one place, it's no surprise that Senior Vice President/General Manager Crista Martyr has a lot to think about. Not the least of which is advertising.

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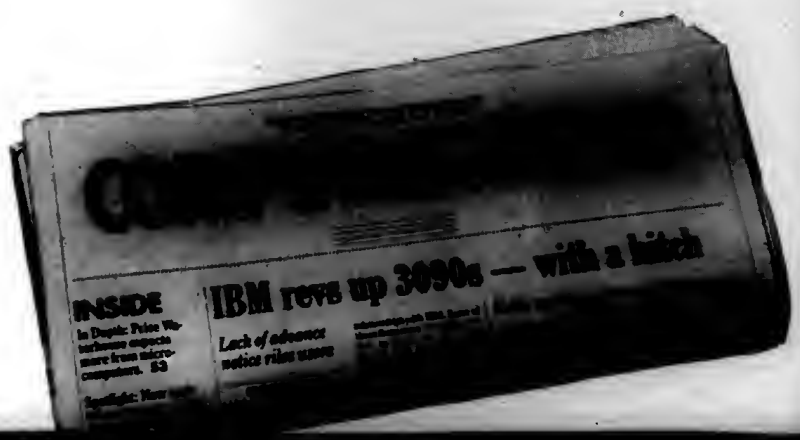

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An IDG Communications Publication

Think twice when hiring temps

BY JAMES CONNOLLY
CW STAFF

CHICAGO — The extensive use of temporary MIS workers can have a string of negative impacts that a company should guard against, including additional costs, erosion of technical skills, declining employee morale and loss of proprietary information.

Those were among the conclusions of a recent study by Chicago-based management consulting firm A. T. Kearney, Inc. However, Kearney officials said there are benefits to using temporary MIS workers, primarily on a short-term, limited basis. "Although using contracted employees in information systems departments has long been a widely accepted practice throughout corporate America, our study shows that companies using these temporary employees should carefully think through their overall information systems staffing strategies and the long-term implications of their use," said Ron Dykstra, a principal at Kearney, in his report.

Kearney based its findings on interviews with MIS executives and representatives of 40 large companies that use or supply temporary employees. The consulting firm focused its attention on temporary programmers and analysts and the companies that supply them, including brokers, contract programming houses and value-added development houses. The survey generally excluded facilities-management companies, systems integrators and management consultants.

Reasoning examined

Looking first at the reasons for hiring temporary workers, Kearney cited the flexibility that use of temporary workers gives a company, which may want to terminate the employees after a short period of time. But Kearney found that many such leased employees move fairly quickly into critical roles and become more difficult to dismiss. Dykstra noted that some companies take on temporary MIS employees in anticipation of economic downturns. But, he said, such downturns do not mean computing needs will diminish, so they are better off hiring permanent employees. He said having full-time employees becomes particularly important in light of signs that the pool of available talent is shrinking.

Dykstra said that when the number of leased employees is more than 10% of the MIS staff for extended periods of time, a company risks losing MIS skills when the temporary worker leaves, losing proprietary information to competitors and experiencing declining morale among regular MIS employees who perceive the temporary workers as overpaid and, sometimes, as a competitor for management positions.

Dykstra said the temporary worker takes home no more money than full-time workers and perhaps less when full-time employee benefits are considered.

"Contracting to acquire technology, contracting whole projects out, short-term contracting to smooth out true peak loads and contracting of routine clerical and operational activities can be sound management choices for most companies," Dykstra said.

MANAGERS ON THE MOVE

RPS names Bloom director

RPS's Bloom

Gordon Bloom, formerly director of operations planning at **Roadway Package System, Inc.** (RPS), has been promoted to director of information systems at RPS. Bloom will be responsible for the overall daily computer operations, including software development and long-term resource planning. He joined the Pittsburgh-based business-to-business small package ground carrier in 1984 and was promoted to director of operations in 1985. Previously, he was manager of operations planning for American Natural Resources in Detroit.

The *Journal Star* of Peoria, Ill., has named Lynn Kavelman manager of information systems. Kavelman, 46, joined the newspaper in 1968 as operations supervisor and became the company's first data processing manager in 1972. In his new position, he remains in charge of DP as well as taking responsibility for other information systems. He previously worked as DP manager at Lehn & Fink Co.

Massachusetts Gov. Michael S. Dukakis has appointed John W. Beveridge to a special commission on computer crime. Beveridge, deputy auditor of management information systems/electronic data processing audit in the state auditor's office, is one of nine appointees named to review the state's current laws defining crimes involving the use of computers. As deputy auditor, Beveridge oversees the auditor's office's computer capabilities. He is the executive vice-president of the New England Chapter of the EDP Auditor's Association.

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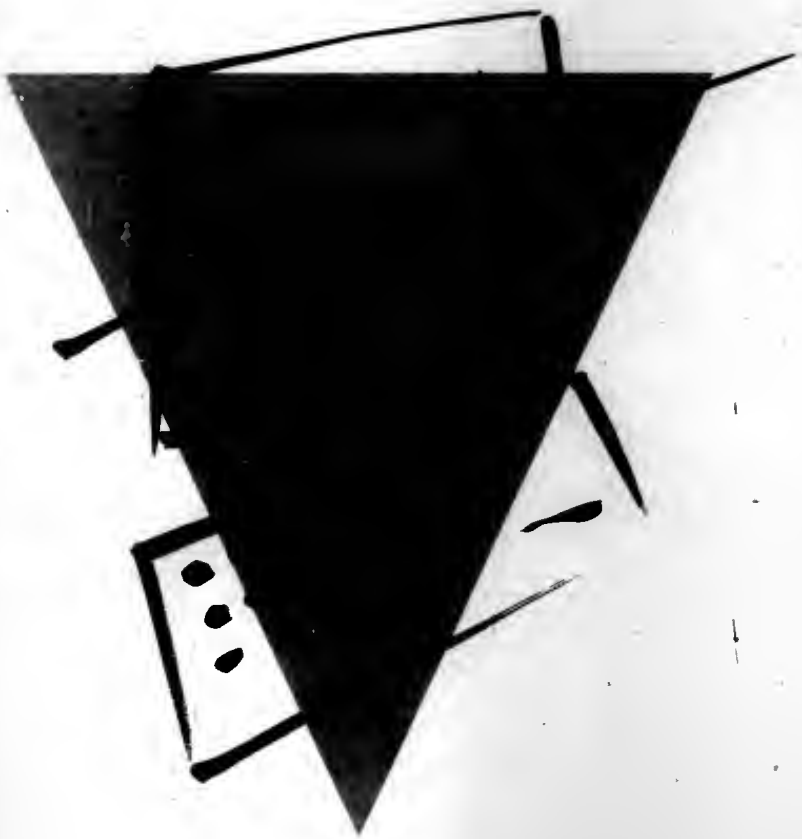

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Insurance firms

CONTINUED FROM PAGE 93

processing standpoint, he is the one we have to serve," said Davis Keyes, second vice-president of marketing and technology at Protective Life Corp. in Birmingham, Ala.

Keyes notes that Protective Life has distributed a PC-based universal life proposal system to about 1,000 agents for several years. But the company recently converted the system from Basic to C, which resulted in a faster and more flexible system with features such as the capacity for agents to process loans and withdrawals.

Keyes noted that Protective is one of the growing number of companies providing agents with some remote access to a mainframe, such as daytime dial-in access to IBM CICS files for status reports on individual policies and claims.

Building on knowledge

"Traditionally, application systems were built to do what was already being done manually. Now we are building management information systems," said Lawrence E. Bacon, senior vice-president of data processing and telecommunications at The Travelers Corp. in Hartford, Conn.

"We've done what I would call relatively easy things. We've automated accounts receivable and payable and other back-office functions. We could do some simple things like quotes on policies with PCs. But now we are at the threshold of seeing whether we can make the technology pay for itself, and the industry knows it has to do some hard work," he added.

The Travelers is one of many insurance companies that have established or become partial owners of agency automation vendors that sell PC- and minicomputer-based systems to agents. Now the insurers and those vendors are turning their attention toward agency applications that work in conjunction with the host mainframes, such as printing binders in the agency office.

"In the past, there was very little connectivity between the agency and the company," Arthur D. Little's Scutro said. "But that is expanding, and in some instances the agency minicomputer or [local-area network] has become a middle tier in the company's three-tier computer strategy."

One of the driving forces in agency automation is the overall pattern of change in the insurance industry.

"Product lines are now more complex, and you need automation to explain them to the customer and to sell them," said Ann Purr, manager of information systems and processing at the Atlanta-based industry organization Life Office Management Association (LOMA). "Ten or 12 years ago, it was a major job to run a proposal, and you could show a customer very few alternatives. Now you can run multiple scenarios."

In addition to displaying the alternatives in a complex product line, a system can improve the agent's ability to cross-sell products. That assistence can be as basic as the use of corporate data base information regarding a homeowner or life-insurance policy to remind the agent when a policyholder's child turns 16 and is a prospect for an automobile policy.

Pilot projects

One of several companies running pilot projects with expert systems targeting complex product offerings is John Hancock Mutual Life Insurance Co. in Boston, which sells primarily through agents.

The financial planning expert system was developed in conjunction with Applied Expert Systems, Inc. in Cambridge and is used at nine agencies. Data about a customer's financial situation is entered on an agent's PC and uploaded to a Digital Equipment Corp. VAX 8650 for batch processing. The resulting report outlines general types of insurance and investment products that customers need to meet their goals and makes recommendations to the agent on which specific products and funding plans match customer needs.

The system goes a step beyond a modular needs-based personal financial analysis tool in use at John Hancock since early this year and uses the knowledge of experienced agents.

"This system will help to broaden an agent's knowledge. Normally, an agent might be familiar with one or two products. This way, they are exposed to all of the available products," said John Santa Barbara, project manager in the marketing systems group.

More research needed

Daniel L. Ouellette, general director of marketing systems at John Hancock, said the expert system has been useful thus far, but he warns that deeper analysis of its benefits is needed.

Noting that sales increases cannot yet be directly linked to use of the system, Ouellette says the average premium for agents using the system is $1,700 per case, which is almost double the $900 average insurance sale.

All insurance companies must take a close look at the benefits and related costs of agency automation projects, Scutro warned.

"One of the benefits for the company is that the system cost-effectively off-loads some of your work to the agent while encouraging the agent to do work with you," he said. "However, the cost-benefit of hooking up agents remains unproven."

However, Scutro added, sometimes the benefit for the company might be eliminating "the unease of seeing everyone else doing it."

"Everything that can be invented has been invented."

John H. Duell, Director
U.S Patent Office, 1899

Ryder's driver

CONTINUED FROM PAGE 93

asking for employees' advice can be a powerful motivator. The way it works is simple. "I don't follow a lot of the traditional organizational lines. It is not unusual for me to stop in the computer room at 7:00 at night, talk to the printing operator, and ask, 'What do you think if we did this?' "

In another case, Perara had the job of redesigning Ryder's complex network command center. "It was a terror in the way the cables were laid out. I wondered if I really understood what was under the floor," he says. So Perara did something that seemed obvious to him, but which some managers questioned. He brought in the people who had been under the floor and asked their advice.

The payoff was almost instant. "I got back the most detailed plan I had ever seen," he says. "Those individuals volunteered to come in at midnight to make the thing work. They worked the entire weekend, and by Monday it was done."

Besides adding perspective to Ryder MIS decisions, participatory management gives all employees something to strive for and, perhaps rise, like Perara, toward the top of the MIS heap. "I believe that promotions from within work," Perara explains.

Although growth is always a bit difficult as workers near the top, MIS employees at Ryder appear to have clear possibilities. "The growth path is very evident at lower levels," Simmons explains. For Perara, a one-time Cuban political exile, the ground floor was as good a place as any to start.

The Klinger/Perara management style does place particular demands on employees. The key requirement for success is to be a team player. "That is a requirement to work for George Perara. You must be a team player," Perara says.

For those who do not catch on, there is coaching and counseling on how to be more cooperative. If these lessons fail to sink in, the person may be left behind as the team marches on.

However, the Ryder MIS style is not as freewheeling as it may appear. Another element of Perara's approach is what he calls "management by objective." This approach consists of weekly and monthly reports that state and track the company's objectives as well as detailed reports of specific projects.

Beyond seeking opinions from all relevant layers of MIS, Perara also ferrets out the views of the people whose jobs are directly affected by automation. In that respect, Perara, as well as the rest of Ryder's MIS management team, is a businessman.

Road warriors

This means that Perara must talk to the accounting staff, the marketing departments and the purchasing groups. And being with a nationwide truck rental firm, Perara must also keep in touch with Ryder's field operations. "We get involved where the rubber meets the road," he notes.

Perara points to a variety of successful MIS strategies influenced by customers or departments within Ryder. One is a billing system that can flexibly serve customers' needs with daily, weekly or monthly billing over a variety of geographical ranges.

While Ryder's billing system is moving to a plethora of IBM System/36-type processors, possibly including the Silverlake model announced last week, much has been done based solely on operational changes. "This only requires changes in the way the operations activities are run at night," Perara explains.

Another example is a "just in time" parts delivery system that will ensure that parts from key suppliers such as Toyota, Ford and General Motors are obtained as quickly as possible, eliminating costly inventory. The system is being put together using PCs, local-area networks and Oracle Corp.'s Oracle data base management system software.

There is more to life than just MIS for Perara. Although his biggest hobby is his family, he loves to travel and knows a number of languages, including Italian, French, Spanish, Portugese and Cobol.

"Oh?"

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LOCAL HAPPENINGS

WEST

San Francisco, July 6. Association for Women in Computing, Bay Area Chapter. "Unix." Stagecoach Restaurant. Contact: Association for Women in Computing, Suite 1044, 41 Sutter St., San Francisco, Calif. 94104.

Phoenix, July 12. Independent Computer Consultants Association, Phoenix Chapter. "WORM Disk Laser Technology." Phoenix Sheraton, First St. and Adams. Contact: ICCA, PO Box 32115, Phoenix, Ariz. 85064.

San Diego, Nov. 17-18. California Educational Computing Consortium Western Educational Computing Conference. Contact: Judah Rosenwald, Extended Education, NAD 153, San Francisco State University, 1600 Holloway, San Francisco, Calif. 94132.

MIDWEST

Grand Rapids, Mich., Sept. 11-13. Midwest Data Base and Data Communications User Group annual conference. Amway Grand Plaza Hotel. Contact: Theodore P. Bock, Harris Trust and Savings Bank, P.O. Box 755, Chicago, Ill. 60690.

SOUTHERN

Atlanta, Sept. 12-14. Southeastern Telecommunications Association. "Positioning for Success." Marriott Marquis. Contact: Carlisle Runnels, SETA Public Relations, P.O. Box 210155, Columbia, S.C. 29221

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FROM PAGE 93

managing this resistance is a critical factor in determining the ultimate success of any computer system for top management.

Resistance to change is inevitable, but the MIS developer is often surprised by unexpected stonewalling and lack of cooperation from line and staff groups throughout the company that must provide data for the executive system. "Initially, we were very naive," says the ESS project manager at a West Coast manufacturer. "One of our early techniques was to get the executive sponsor to bang people over the head with a two-by-four to get them to provide information, but that failed miserably."

"IF YOU aren't aware of the politics, you're dead."

KEN SOHA
XEROX CORP.

Joking aside, the sensitive nature of resistance to ESS is evident in the fact that the above ESS expert and several other MIS managers agreed to speak only on the basis that their companies not be mentioned.

Learning by doing

When installing an ESS, MIS managers learn how subtle organizational resistance can be and how difficult it is to overcome. In one Midwestern consumer products company, ESS developers got used to hearing staff groups that would have to supply data argue, "We don't have time to get involved in this" and "This data is too sensitive to put on a system where our department can't control access."

At the West Coast manufacturer, the financial staff saw ESS developers as subtly usurping their role of carrying information to top management, the project manager says. "A lot of their resistance was not outwardly defiant. They would simply put up barriers to access, like saying they can't release the data until they have had a chance to review the numbers."

Often, resistance to an ESS is very sensible behavior, contends Lynne Markus at the University of California at Los Angeles's Anderson Graduate School of Management. It represents an individual's realistic assessment of how he will fare with the system. "They look at the situation, and they think they will lose power," she says.

Therefore, since at least some resistance to a new ESS is likely, developers in MIS must create a strategy for dealing with line and staff groups whose cooperation is needed to make the system valuable for top management. The heart of this strategy involves cultivating relationships with both the executive sponsor and those in the organization who must provide data to the ESS.

Index Group's Gulden

Virtually every experienced ESS developer recognizes the critical role the system's executive sponsor, or most senior user, must play in the process. "With an ESS, you will cross more departmental boundaries than almost any other kind of system," says Lloyd Belcher, coordinator of executive information systems at Conoco, Inc. in Houston. "You are running across the grain of the organization, and to penetrate those departments, you must have the executive's support."

But more than just having support from top company management, the ESS manager must know how to use the sponsor to build support for the system throughout the rest of the organization.

First, the project manager must convince the sponsor not to delegate responsibility for getting politically sensitive information on the system. "There is a tendency to try to shield the executive from organizational resistance and to try to deal with it yourself," says Gary Gulden, senior vice-president of The Index Group in Cambridge, Mass. "But the boss has to do his own dirty work."

Often, however, ESS managers find their executive sponsors unaware that resistance is a problem in developing the system. In one large insurance company, the developer had to confront his chief executive officer when he could not get information from the controller. The executive could not understand what the problem was until he reluctantly met with the controller in a carefully orchestrated meeting. Only then did the CEO realize the controller's confusion about the obejctives of the system.

Courting data suppliers

While cultivating support from the system's executive sponsor, the ESS manager must also build relationships with those who will be supplying data to the system. "If you don't get the staff groups to buy in," Conoco's Belcher says, "then you won't get the quality of information you want."

Building organizational support for an ESS means meeting with data-supplying staff and line management groups to clarify the purpose of the system, explore how subordinates' roles might change once the system is fully installed and build credibility so information suppliers realize MIS is not trying to take away their control over the quality of the information.

"People knew this was coming, but it was very foggy," says the ESS manager in the consumer products company. "Resistance arose because they didn't understand that the system was just a different way of communicating information. It wasn't going to take away their power."

In the process of discussions and demonstrations with information systems suppliers, politically sensitive ESS developers often look for ways to minimize the additional work the system will create for staff and line managers. They also look for ways to build benefits into the system for those who must provide data.

One common approach is to include the name and phone number of the data supplier on each screen the executive views. This helps maintain a sense of ownership and visibility for subordinates while enabling the executive to quickly follow up if he has questions about information in the system.

INDIVIDUALS "look at the situation and they think they will lose power."

LYNNE MARKUS
UCLA'S GRADUATE SCHOOL OF MANAGEMENT

Organizational support

Overall, the strategy for managing resistance in ESS development means working both ends of the information pipeline. "I play every angle I can come up with," insists one politically savvy ESS manager. Aside from asking for a direct executive order to supply data, which in many corporate cultures is not feasible, there are three common tactics used by ESS project managers to build organizational support for their systems.

One approach, according to consultant Gulden, is a principle-setting meeting in which executives and data suppliers meet to formulate ground rules about how an ESS will be used. In one manufacturing firm, financial analysts were concerned that executives would overestimate the accuracy of a modeling application built into the ESS. Both sides met and agreed that executives would use the model only for exploring options, while the staff would continue to do the complex calculations on which final decisions would be made.

Another common tactic is to use existing management processes to build support for the system. As in the other cases, this approach requires the strong backing of an executive sponsor.

In one corporation, where the culture breeds strong-willed managers, the ESS developer avoids going head-to-head with resisters. Instead, he looks for ways to gain leverage through normal management processes — such as staff meetings involving the sponsor — where he can subtly put resisters on the spot, forcing them to take a public position for or against the system.

"That only happened a couple of times before the managers saw which way the wind was blowing. The resistance melted real quick," he says.

Another effective tactic is demonstrated by the ESS manager who confided that on several occasions, he planted a couple of incomplete reports on the executive's system when he was only able to negotiate access to a limited amount of information from reluctant senior staff members.

Reviewing the system a month later with the executive, the developer pointed out the new reports and asked if it would be more helpful to add the missing information. When asked why the rest of the data wasn't there, the ESS manager simply suggested some reluctance to release it and then let the senior manager decide how to get the information into the system.

Organizational resistance to an ESS is inevitable, because information flows and communications patterns reflect existing power relationships and computer systems for top management threaten to change these. "We're not just talking about the implementation of a piece of software here," one veteran ESS developer says. "It takes time to get quality data and build the infrastructure needed to support an ESS."

Xerox's Soha concludes, "Just having a strategy isn't enough. You've got to have the executive sponsor's support, and he's got to understand that there's resistance out there. The whole process must be managed very, very carefully."

De Long is a research associate at Harvard Business School and co-author, with J. F. Rockart, of Executive Support Systems: The Emergence of Top Management Computer Use.

The resisters

The causes and sources of resistance to executive support systems (ESS) are complex and varied. But identifying the groups that resist ESS implementation can help in managing the resistance — and that can be crucial to a successful system. The four potential sources of resistance are as follows:

Staff personnel who fear the loss of control over information used by executives.

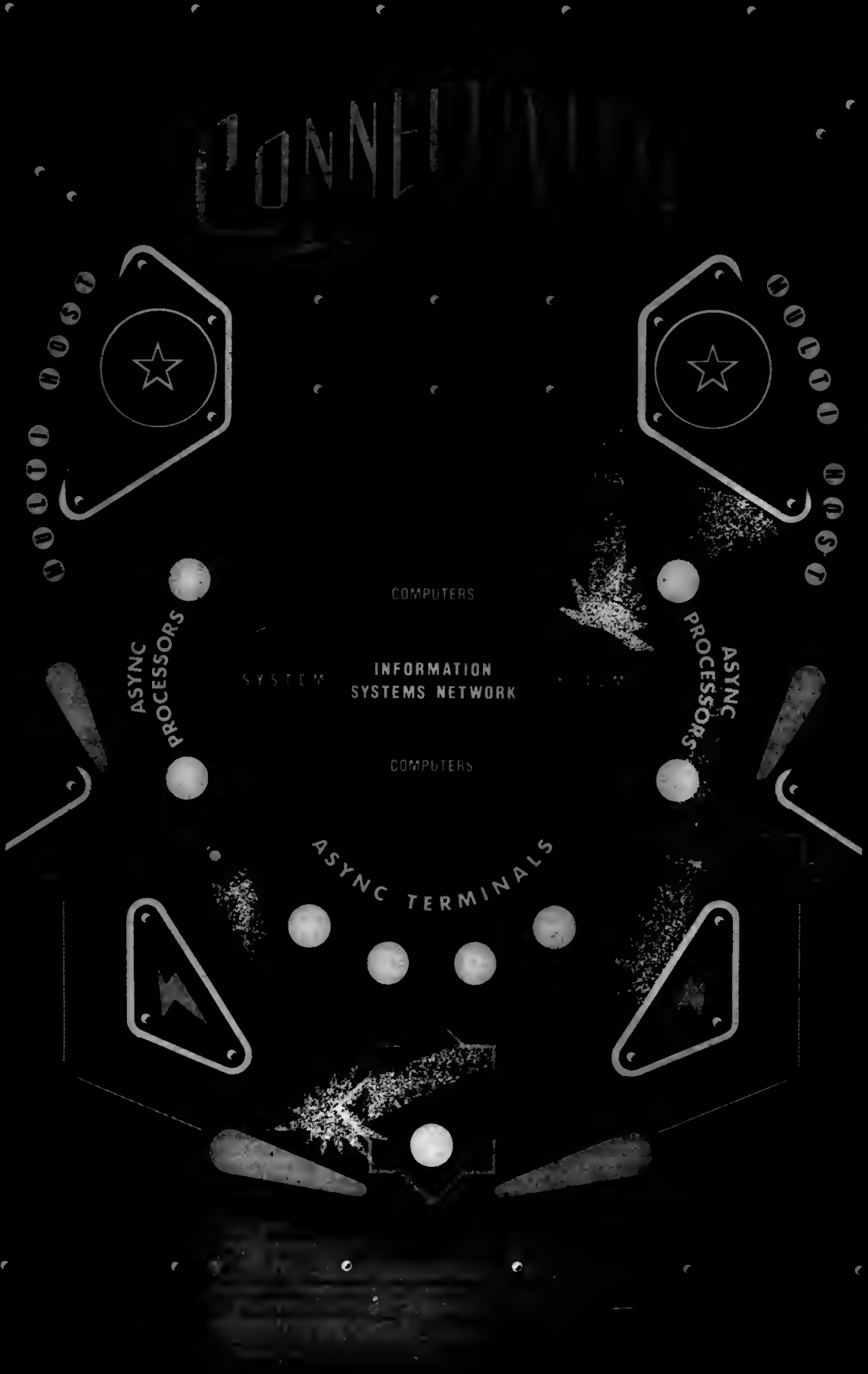
Subordinate line managers who fear giving top management too much visibility into their operations.

Either staff or line managers who provide legitimate resistance created by one of three legitimate perspectives:

- "The business is doing fine, why change things?"
- "This system represents all costs and no benefits for my group."
- "Even if we send up the data they want, our executives won't have the context to understand it."

Executives who for any number of reasons do not want to use the technology themselves. Their reasons may include the feeling that the system provides inadequate functions or information; the fact that the user interface does not suit them — perhaps they are not comfortable at a keyboard; or the conclusion that the ESS is too difficult to use when compared with the benefits it provides.

Adapted from Executive Support Systems *by J. F. Rockart and D. W. De Long, Dow Jones-Irwin, 1988.*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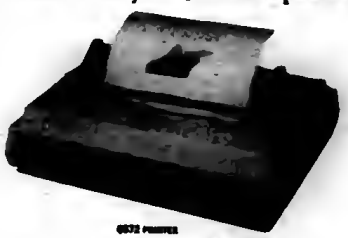

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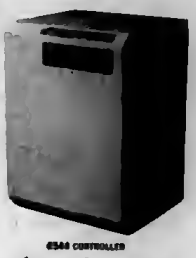

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Klein

CONTINUED FROM PAGE 93

software vendors, superimposing corporate needs on this diversity. The relative importance of different clients is usually clearly defined, and the level of service to them varies considerably. The manufacturing model is constrained by strict cost/benefit analysis guidelines, which hamper justifying strategic information systems infrastructure investments.

An information systems organization that follows the service company paradigm usually coordinates information systems activities centrally because of the need to interface. Standards permit one to three major architectures to coexist. Clients who provide service, marketing and delivery functions get priority over support functions. Its emphasis on the short term fosters instability in information systems activities and neglect of personnel development.

AMONG ITS OWN staff, an entrepreneurial organization encourages diversity and experimentation and fosters participatory management.

Turn entrepreneur

By changing the adopted paradigm to an entrepreneurial one, the executive can make information systems a more effective management partner of the company.

In its client relationships, the entrepreneurial information systems organization is a facilitator, not the sole provider of information systems activities. Its client relationships are genuine partnerships based on mutual respect. Clients routinely lead information systems development projects. They also share responsibility for technology. This involves more task-oriented teams, more fluid matrix relationships, improved networking of people and skills, diverse technical approaches, experimentation and prototyping.

An entrepreneurial organization encourages cooperation and communication among all the information technology players and ensures quality without stifling innovation and creativity. It does this by developing standards for documentation, security, performance and maintenance. But in place of rigid technical standards, it devises an information infrastructure.

Among its own staff, an entrepreneurial organization encourages diversity and experimentation and fosters participatory management.

Information systems capitalizes on human resources by providing the information needed to push decision making down in the organization and expanding human intelligence. It carefully selects and monitors new employees and invests in education, training and productivity tools. The result is motivated people who are committed to the organization's goals. They trust their management and feel they're involved in key decisions and recognized for their accomplishments.

The entrepreneurial information systems organization has an equal voice in management councils involving other support areas and helps address issues that aren't its direct responsibility. Planning — continuous and closely tied to business planning — provides a broad strategic information systems direction to channel diversity, decentralization and innovation.

Information systems focuses on delivering high-quality service rather than containing costs. An entrepreneurial organization recognizes that it can improve quality only if it establishes measures to report on quality and systematically improve its performance.

It approaches innovation by taking small steps rather than striving for a risky breakthrough. As a result, the distinction between new systems development and maintenance diminishes and design methods facilitate continual change during a system's lifetime. An entrepreneurial information systems organization stays close to the leading edge of the technology curve, at least experimenting with new technology, if not putting it into production. It does not use obsolescent technology to save money.

What can an information systems executive do with this idea? Compare it with the existing paradigm to assess whether the information systems organization's growth and effectiveness are being constrained. Use it to look at relationships with staff, clients and management. Begin to implement the entrepreneurial paradigm. Set a career goal of getting the company to adopt it.

How do you plant such an organization? A certain degree of compatibility between information systems and the company's culture is required. Usually that is determined by the leader. The chief executive officer is the most common source of entrepreneurship. The information systems executive can also introduce entrepreneurship, starting internally and then planting like-minded information systems people in client departments. A third source — external agents of change, such as executives from another company and consultants — can tilt the balance in a corporation if employed at the right time.

Klein is senior vice-president at John Diebold & Associates.

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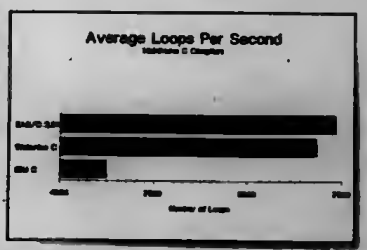

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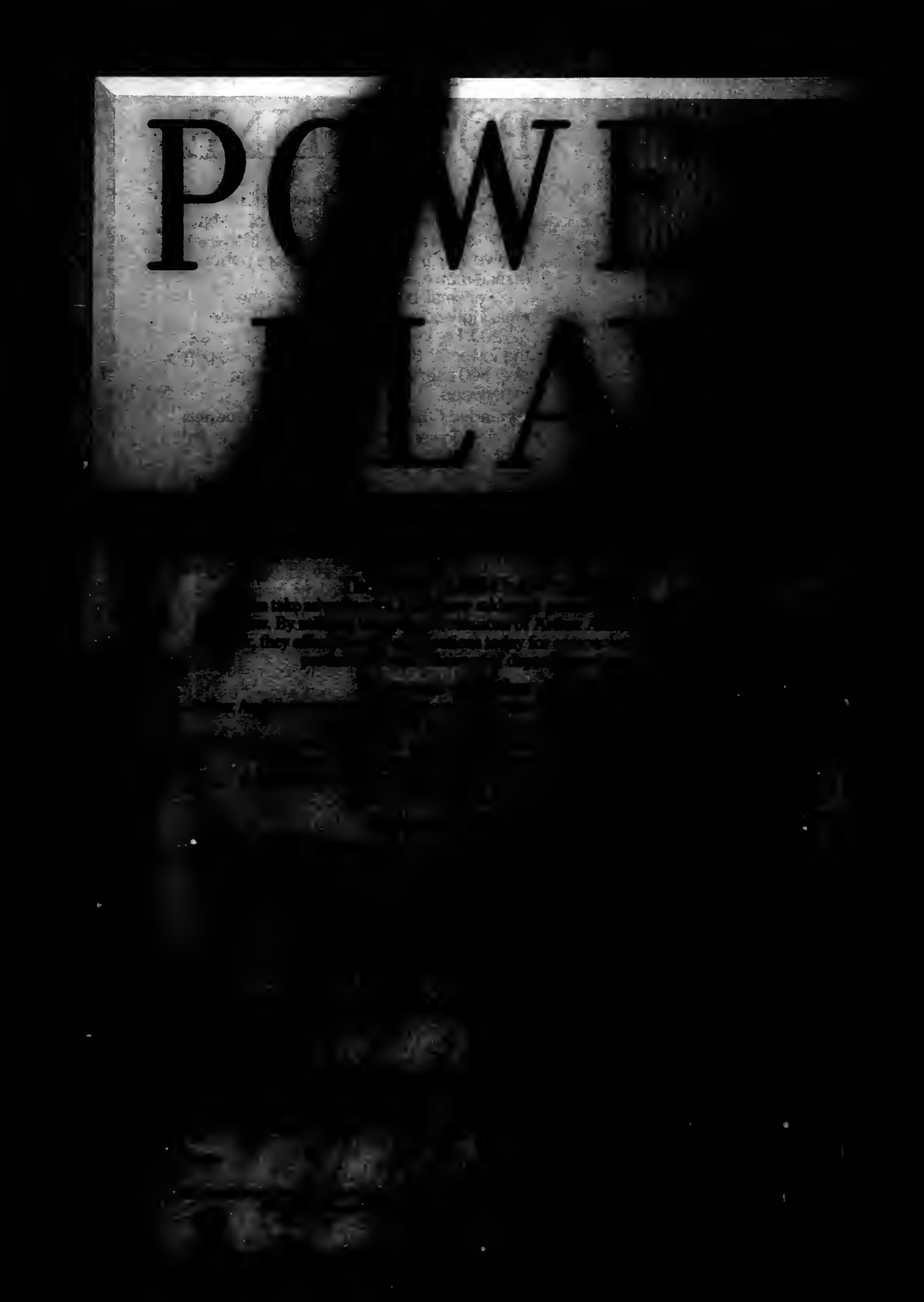
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INDUSTRY INSIGHT

Roger Grant

Maintain the maintainers

Once thought of as an industry of high growth and profit margins, the third-party maintenance industry is exactly the opposite today. Both margins and volume are shrinking — and this should be of concern to customers.

I say this because I believe that the maintainers are directly responsible for the improvements in both service price and quality that some users are experiencing from no less than IBM.

A relatively short time ago, the third-party maintenance business was relatively simple. The major manufacturers, such as IBM, treated third parties with a casual disregard. In addition, vendors looked on their maintenance customer base as a cash cow that, if properly manipulated, would provide sizable profits and a ready market for new generations of equipment.

If a major manufacturer wanted to drive the customer to buy new equipment, it needed only raise the price of maintenance and reduce the level of support for the older hardware.

Continued on page 117

Crucial year for Honeywell Bull

Systems vendor breaks loose from Honeywell, will charge market in 1989

BY CLINTON WILDER
CW STAFF

Like either Michael Dukakis or George Bush, Honeywell Bull, Inc. will face a critical year in 1989.

On the surface, the Minneapolis-based systems vendor will be moving its home to the Boston area and most likely renaming itself without the moniker of its U.S. progenitor and part-owner, Honeywell, Inc. But more importantly, 1989 is put-up-or-shut-up time for Honeywell Bull's market success, according to President and Chief Executive Officer Jerome J. Meyer.

Jerome J. Meyer

"I see the company's progress in three phases," Meyer said earlier this month. "The first was breaking away from Honeywell; the second was doing what needed to be done in the organization. The third, next year, will be attacking the market."

Meyer has already earned high marks from industry watchers for his decision late last year to cut 1,600 U.S. jobs and move all of Honeywell Bull's Phoenix manufacturing to Massachusetts [CW, Nov. 16, 1987]. "What needed to be done was so obvi-

Continued on page 116

EDS, others protest Perot postal deal

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — H. Ross Perot's splashy re-entry into the computer services market with a U.S. Postal Service contract has triggered legal protests from two competitors, Electronic Data Systems Corp. (EDS) and Planning Research Corp.

The competitors argued that the sole-source contract between Perot Systems Corp. and the Postal Service violates government procurement rules because it was not awarded through a competitive bidding process.

EDS and Planning Research filed official protests earlier this month at the General Services Administration's Board of Contract Appeals, asking that the contract be halted.

The contract raised similar concerns on Capitol Hill. U.S. Rep. Frank McCloskey (D-Ind.),

Continued on page 118

Data View

Low-end service maintains lead

Despite more large firms offering CPU service, PCs, terminals and peripherals still accounted for the lion's share of the third-party maintenance business last year

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CW CHART

Excelan-NET wedding off

BY PATRICIA KEEFE
CW STAFF

The attempted acquisition of Excelan, Inc. by Network Equipment Technologies, Inc. (NET) is officially dead, thanks mainly to resistance from some large Excelan shareholders and NET's angry reaction to their bid to hike the sale price.

"Both sides have agreed the merger is essentially dead," an Excelan source said recently, adding that lawyers are trying to cleanly extricate both companies from the agreement. The

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- Unisys mass recovery center, alleges licensing end-run. Page 115.
- 3Com frets over Novell-Apple tryst. Page 116.

Compucom fired up by acquisitions

BY ALAN J. RYAN
CW STAFF

CHERRY HILL, N.J. — Building off a solid backbone of former IBMers and hammering out its outbound sales philosophy, Compucom Systems, Inc. is hoping to make its competition in the computer dealer field sit up and take notice.

While the microcomputer distribution and retailing industry is in a postboom period of retrenchment, Compucom is content to buck the trend. Its latest growth surge came with its June 9 acquisition of financially struggling Compushop, Inc., the 16-store retail computer subsidiary of Bell Atlantic Corp., for $24 million.

The architect of the deal was Compucom Chairman Ira Lubert, who began his career on the fast track in the IBM sales force. In nine years at IBM, Lubert was named the company's salesman of the year in 1975 and manager of the year in 1981. He then worked at ITT Systems, Inc. for two years, where, at age 31, he was named vice-president of North American sales.

Industry analysts have predicted that publicly held Compucom will reach $160 million in sales this year and will have earnings of approximately $3 million. The company reported sales of $23.6 million for its first quarter this year with earnings of $480,000, or 2 cents per share.

While Compucom's profits are not substantial, the year-old company, which sells primarily to Fortune 2,000 and government clients, has seen much worse. And its corporate customers believe its growth has strengthened its service.

When Hyundai Motor America was looking for laser printers in 1986, Richard Hernandez, the firm's information systems administrator, saw a Kyocera Unison, Inc. printer at a Comdex show and became interested. "We asked Compucom to get us an evaluation unit," he said. "They did that, and they ended up becoming a Kyocera dealer. And we ended up buying the product."

Hernandez added that Hyundai is growing rapidly and has added more regional offices since it started dealing with Compucom. "Since they've grown, they're able to meet all of our service needs nationwide," he said.

That growth has lead Compucom to become a major mover of microcomputers.

In an agreement with Compaq Computer Corp., Compucom was awarded U.S. 1 status in November, making it one of two dealers to receive that designation in 1987. The status authorized Compucom to purchase Compaq personal computers at a high-volume discount.

Compucom also sells micros from IBM, Hewlett-Packard Co., AST Research, Inc., Epson America, Inc., Toshiba Corp. and Zenith Data Systems as well as software, peripherals and local-area networks from leading vendors.

Just one year ago, the Compucom story was one of financial losses. The company was created by majority shareholder Safeguard Scientifics, Inc., a King of Prussia, Pa.-based high-tech holding company, through the

Continued on page 115

Up & Coming: *Compucom*

Headquarters: Cherry Hill, N.J.
Founded: 1987
Chairman: Ira Lubert
Sales force: 52
Business: Outbound and retail sales of microcomputers
Of note: Growth by acquisitions, such as 16-store Compushop chain

Wedding off

CONTINUED FROM PAGE 113

companies thought they had reached an equitable deal two weeks ago, but it fell apart, he added.

Both communications vendors want to execute a clean break as quickly as possible. "There's no sense in flogging a dead horse. It's time to finish this business and move on," the Excelan source said.

NET spokesman Stan DeVaughn, however, declined to confirm that the termination of the deal has been finalized. "I can't comment, other than to say that there are no new facts. I would add that each day can bring new facts," he said.

Once NET separates itself from Excelan, observers have speculated, it will go after Micom-Interlan, Inc., another Ethernet and Transmission Control Protocol/Internet Protocol vendor rumored to be on the block. As for Excelan, officials have claimed it is not looking to be sold.

The attempted merger, first announced in April, was bedeviled almost from the start — the stock market dropped 100 points the day the pact was announced. Also, Excelan officials underestimated shareholder reaction to a negotiated sale price of roughly $12 per share. After Excelan shareholder discontent surfaced, NET sweetened its offer slightly but to no avail.

According to a source close to both firms, NET's May 13 press release, which accused Excelan of breach of contract while threatening to exercise stock option rights, steamed Excelan executives.

To salvage the merger, Excelan would have had to give NET a graceful way out of that press release, and NET would have been forced to give Excelan shareholders a better deal, the source added. At least one meeting between the principals and board members of both companies failed to resolve any issues.

The specifics of the cancellation negotiations revolve around liability issues, most notably the question of which firm, if either, breached the merger agreement.

The issue of breach is "the crux of the whole negotiations. They gave us a laundry list, but they never proved there was a breach," the source said.

INDUSTRY WEEK IN BRIEF

Wang Laboratories, Inc. last week [illegible] Vice-President, Treasurer and Corporate Controller Eugene Ruffo to the position of [illegible] officer. In addition, Vice-President of Worldwide Field Operations Ian Diery has been promoted to executive vice-president, worldwide field operations, and Senior Vice-President and Chief Development Officer Horace Tsiang has been appointed executive vice-president and chief development officer.

Mountain Computer, Inc. has agreed to pay Quantum Corp. an undisclosed amount and discontinue the manufacture and sale of its Drivecard hard-disk product line. This comes as a result of a patent infringement suit brought against the company by Quantum and its subsidiary Plus Development Corp. Milpitas, Calif.-based Quantum and Plus filed a similar suit against Western Digital Corp. last month.

Italy's Ing. C. Olivetti & Co. has sold its 9.3% stake in Stratus Computer, Inc. Olivetti said the approximately $62 million raised from the sale will be used for other corporate purposes. Olivetti said it will continue to resell Stratus computers on an OEM basis.

Oracle Corp. became the newest entrant in the systems integration business by forming Oracle Complex Systems Corp. Robert B. Lawrence, former president of SHL Systemhouse, Inc. subsidiary Systemhouse Federal Systems, Inc., will head the Washington, D.C.-based organization.

NEC Corp. plans to start test-marketing its 4[illegible]-bit dynamic random-access memory chips in Japan by the end of this year, which will likely make it the first Japanese chip maker to do so. NEC will then take a wait-and-see approach to assess how the parts are received by its Japanese customers before determining production goals.

It may be summer, but chilly winds still blow in Canada. Ottawa-based SHL Systemhouse, Inc. is getting down and dirty in its bid to assume Canada's Computerland Corp. owner, Computer Innovations Distribution, Inc. (CIDI). Systemhouse has begun to send letters to CIDI shareholders that offer to purchase all of the company's outstanding shares. Systemhouse is offering $[illegible] Canadian, or $[illegible] American, for each of CIDI's [illegible] million shares — approximately $112.7 million Canadian, or [illegible] million Americans. Systemhouse said last week it has purchased [illegible] Rayden is [illegible] and chief executive officer of Systemhouse.

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Unisys Canada slaps $500K lawsuit on firm

BY PAUL BARKER
IDG NEWS SERVICE

TORONTO — Unisys Corp.'s Canadian subsidiary has launched a $500,000 lawsuit — $410,000 American — against the owner of a disaster recovery center, claiming the third-party organization used Unisys software without obtaining the proper licensing.

Defendant Brian Keenan, president of Toronto-based Bekeen Computer, said the lawsuit calls into question the traditional right of an owner to use licensed software on another system for backup testing. "Some of these issues have been brewing for quite some time, and in many ways it is good to see the pot finally come to a full boil," he said.

Bekeen operates a hot-site disaster recovery center for Unisys 1100 users and installed Unisys hardware at the center without the aid or involvement of Unisys, Keenan said. "Unisys contends that we must have used illegal documentation and software to complete the installation. We did not license any control or other software from Unisys for use on the recovery machines. It is their contention that we must do so," he said.

A statement of claim filed in the Ontario Supreme Court against Bekeen by Unisys Canada and its U.S. parent seeks a mandatory order requiring the defendant to delete proprietary software from all computer systems in its "possession, power, custody or control."

"We are not suggesting that Bekeen has improperly permitted licensed users of Unisys software to use that software for testing the Bekeen backup recovery system," Unisys spokesman Enrique Garcia said. "Our concern lies in the fact that Bekeen itself has obtained and is using Unisys proprietary software without a license."

Bekeen, which also sells secondhand Unisys computers, has in turn filed a statement of defense and counterclaim asking that the suit be dropped and that legal costs be paid by the plaintiff.

The equipment named in the suit includes Unisys's 1100/70 and 1100/80 and the DCP 40 communications system. The software applicable to each includes the 1100/70 and 1100/80 System Control Software and DCP 40 Telecom Operating System. Unisys said the software and other documentation are made available to users of Unisys hardware only pursuant to license agreements.

In the statement of defense and counterclaim, Bekeen denied that the equipment was confidential or secret and claimed that "software and documentation have been widely disseminated by the plaintiffs."

Compucom

CONTINUED FROM PAGE 113

restructuring of Machine Vision International Corp., a vendor of computer-aided vision equipment, lost $13.6 million on sales of just $2.9 million in 1986.

With Machine Vision's star tumbling, Safeguard's funding allowed it to acquire Tristar Data Systems, Inc. and Office Automation Systems, Inc. in July 1987.

Compucom's Lubert

Lubert, vice-president of acquisitions at Safeguard, was brought in to be president of Compucom, the by-product of the three merged companies.

On the heels of Compucom's formation came the acquisition of three MBI Business Centers retail outlets. In October, more stores were purchased, this time from Compushop in the Los Angeles and San Francisco areas. In December, additional stores in Nashville and Totowa, N.J., were brought into the Compucom chain. And before year's end, the company announced it would acquire outlets in Charlotte, N.C., Boston and Tampa, Fla.

With the Compushop acquisition, James W. Dixon, president of that chain, has become Compucom president, and Lubert has become chairman. Dixon is also an IBM alumnus, having spent 13 years on that firm's payroll.

Compucom customer Matthew Meldon, microcomputer manager at Del-Webb's Claridge Casino and Hotel in Atlantic City, said he has been working with Compucom for five years, beginning the relationship at a previous job and carrying it to Del-Webb's.

Meldon said Compucom's advanced products group recently earned his respect when it came to his shop, set up a desktop publishing system and "showed us everything we could possibly want to see before we made our decision."

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3Com frets over Mac Netware

BY PATRICIA KEEFE
CW STAFF

ANALYSIS

The recent materialization of Novell, Inc.'s vaporous Netware for the Macintosh [CW, June 13] drew especially close scrutiny from archrival 3Com Corp.

3Com, long a supporter of Apple Computer, Inc.'s Macintosh and Appletalk network environments — so much so that it is occasionally the subject of an Apple buy-out rumor — had good reason to fret over the Novell announcement.

Unlike those from 3Com and Tops, now a subsidiary of Sun Microsystems, Inc., Novell's Mac offering supports Apple's prized Appletalk File Protocol (AFP) — hence 3Com's fear that Apple would be so overcome with appreciation that it might break its own ironclad rule of treating all third-party products equally.

Although a long time in coming, the Novell product is more important to Apple than it is to Novell, which is more concerned with the IBM and Digital Equipment Corp. environments. But while Apple needs access to IBM machines which it already has, thanks to 3Com, Tops and a number of other suppliers, it also wants conformance with AFP.

"Apple doesn't like [the fact that] 3Com's implementation does not conform to the AFP," one analyst said. AFP support from network vendors is important because Apple has directed its applications developers to write to it. Novell may be late into the Apple market, but the firm "did it right" by conforming to AFP as Apple wants, the analyst added.

Appletalk is seen as one of four networking standards, along with IBM's Token-Ring, Ethernet and Starlan. So it is interesting that 3Com, which bills itself as a staunch supporter of standards and knocks Novell for its Lone Ranger approach, doesn't support AFP.

Party crasher?

But there are arguments for both approaches. According to 3Com President Bill Krause, the last thing many large corporate users want or need today is yet another proprietary protocol — such as AFP. In this day of multivendor environments and open systems hype, he may have a point. You could say that Apple is a little late to the network standards party.

"Novell's support of AFP is consistent with its strategy to sell to smaller companies," Krause claimed. Given market research that consistently documents Novell's dominance in Fortune 1,000 departmental networking, that statement is not entirely accurate.

Which may have something to do with why 3Com appeared torn between dismissing Apple's presence at Novell's unveiling and casting threatening words in the direction of Cupertino.

3Com founder Robert Metcalfe told *Computerworld* he would have been very angry had Apple anointed Novell's Mac offering, especially given 3Com's and Tops' longtime support of Apple.

One story making the rounds claimed that Krause expressed similar sentiments to Apple Chief Executive Officer and Chairman John Sculley about endorsing Novell's product. "There's no truth whatsoever to that," snapped Krause, who stressed, "I'm delighted with our relationship with Apple."

However, he also said, "Apple has done dumb things before, and we didn't get upset about it." When asked to be specific, he said, "Showing up to attend a press conference held by Novell is not one of [Apple's] greatest moves."

But then again, Krause conceded that Apple's attendence at the Novell briefing is no different than its appearances at other developers' introductions.

While Krause's reaction flip-flopped, Sculley, who lavished praise on Novell's AFP support, clearly has taken pains to soothe any ruffled feathers at 3Com, according to a source.

Sculley reportedly was quick to assure 3Com executives that he did not demean 3Com's Mac offering as "inferior" and at one point dropped by to take a look at 3Com's Mac projects, the source said.

Actually, while Sculley did stop short of endorsing Novell, his comments were pretty strong, several analysts who attended the press briefing said. "John went a long way to say what a wonderful thing [Netware for the Mac] was for Apple," said one, adding that Sculley did mention 3Com and Tops, but only in passing.

Also interesting was that Sculley went so far as to stress the similarity of the relationships between the technical departments at Novell and Apple to a similar deal between Apple and DEC. And Apple claims to be pretty tight with DEC.

Honeywell Bull

CONTINUED FROM PAGE 113

ous, but doing it was difficult," said Meyer, who headed Honeywell's U.S. information systems business before Honeywell Bull was officially formed 15 months ago.

Honeywell is expected to reduce its 42.5% ownership of Honeywell Bull to approximately 20% at the end of this year, which will make France's Groupe Bull the majority owner at 65% — with Japan's NEC Corp. maintaining its 15% stake. But Meyer dismissed the notion that the ownership change will alter Groupe Bull's commitment to selling the Honeywell computer line in the U.S.

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the French absolutely agree."

Meyer said he believes Honeywell Bull has pretty much achieved its initial goal of slowing the exodus of Honeywell's U.S. installed base — the exodus that spurred Honeywell to sell the computer business to Honeywell Bull at what many considered a fire-sale price. Key customer accounts such as General Electric Co., which sold its own computer business to Honeywell in the 1970s, have been reassured, Meyer said.

"They were rightfully skeptical [about the international triventure] at first," Meyer said. "But I had lunch with [GE Chairman] Jack Welch recently, and I think they're believers."

Keeping traditional customers like GE on board required a lot of patience. Now, as Honeywell Bull looks toward 1989 and expanding its U.S. installed base, Meyer said, "I'm ready to get impatient again."

In order to more aggressively attack the U.S. market, Meyer preaches a similar gospel to IBM and many other vendors: the solution sell. Following strategy already practiced by Honeywell Bull in countries such as the UK and Australia, the company will hook up with more value-added distributors in vertical markets such as banking and telecommunications. Honeywell Bull's sales force has integrated service with products in an effort to win larger contracts for complete system offerings.

"If you ask me who will we most look like when this [repositioning] is completed, I'd say a combination of DEC and EDS," Meyer said, referring to Digital Equipment Corp. and Electronic Data Systems Corp. "We want to provide much more than the hardware — the network design, systems design and program management services."

Although its net profit margin was less than 1%, Honeywell Bull did finish in the black in 1987, which was an improvement over Honeywell Information Systems in 1986. Honeywell Bull earned $17.4 million on revenue of $2.06 billion. But Meyer said profitability is a secondary goal to strong cash flow.

Groupe Bull, a major Unix player, recently joined the Open Software Foundation (OSF). Meyer said the OSF's goals are worthy but that he is worried about warring Unix standards.

Grant

CONTINUED FROM PAGE 113

Obviously, this attitude led to inconsistent quality and high prices.

In addition, the major manufacturers refused to service any equipment but their own. This forced customers to either stay away from other manufacturers' equipment or face the likely possibility of finger-pointing in times of trouble. To a large extent, these practices led to the creation of third-party maintainers.

From the customer's point of view, these firms offered three very important benefits. First, they would service a variety of equipment; thus the customer needed to dial only one telephone number to solve a service problem. Second, they saved money, since the pricing was usually 15% to 25% below the manufacturer's. Finally, for the first time, the customer had an alternative and could, therefore, have some degree of influence on the manufacturer.

Today, due in large part to the drastic change in the attitudes and practices of the major manufacturers, the service industry has become extremely complex and difficult. These changes in attitudes and practices are evident to both the third parties and the customers in different ways.

The customers have suddenly witnessed — and hopefully benefited from — price concessions, such as IBM's Corporate Service Amendment and Mid-range System Amendment; new service offerings, such as 24-hour, seven-day-a-week on-site service; and a new willingness to service other manufacturers' equipment.

The third-party maintainers now find major manufacturers much less cooperative than they were in the past. This makes it extremely difficult, and in some cases impossible, for the maintainers to provide quality service at a competitive price.

This situation is similar to a good news, bad news story. In the short term, from the customer's point of view, the news is good. The manufacturers should continue to aggressively improve their service offerings, and customers will see greater flexibility and cooperation.

The bad news is that if the third-party maintainance industry is allowed to be driven down or totally eliminated, the manufacturers will probably return to their old ways.

I believe this can be prevented and that the customers are the key.

Whether or not you ever plan to use a third party to maintain your equipment, ask your equipment vendor if they are available. Ask about the manufacturer's policy toward self-maintenance — another possible casualty. If enough customers ask, the sales force will carry back the message.

If customers use these points as part of their decision-making criteria and don't purchase from manufacturers that have no alternative service, I guarantee that the manufacturers will respond. In that way, you can assure yourself that healthy competition will exist and that you will continue to receive the benefits.

Grant, the former vice-president of marketing and sales at Intelogic Trace, Inc., is president of the San Antonio-based Business Development Group, which offers sales productivity training and consulting to computer industry vendors.

EXECUTIVE CORNER

Norbert R. Berg, deputy chairman of the board at Control Data Corp., announced his intention to retire effective June 30 to pursue his varied personal interests after 29 years of service to the company. Berg, 56, will continue to be a member of the board at CDC, serving as vice-chairman.

Data Three Computer Corp. announced that **John (Jack) E. Harvey** has been named president and chief operating officer of the company. Harvey will be responsible for day-to-day operations with special emphasis on sales and marketing. Harvey joins Data Three after spending five years with IBM, five years with Intel Corp. and, most recently, seven years with Econocom-USA, Inc., at which he served as vice-president of sales, executive vice-president and director of marketing.

Novell, Inc. announced that **Louis C. Cole**, executive vice-president of the Novell Software Group, resigned earlier this month. Cole was formerly president of CXI, Inc., the data communications software developer that was acquired by Novell in March 1987. The announcement was made by **Ray Noorda**, president and chief executive officer of Novell. Noorda will serve as acting vice-president of the Software Group. Cole will continue to act as a consultant for Novell.

Harris Corp. has announced the appointment of **Phillip W. Farmer** to the position of senior vice-president, sector executive in charge of the company's Government Systems Sector. He succeeds **Frank J. Lewis**, who has been appointed to the new position of senior vice-president, special assistant to the chairman and CEO.

Unisys Corp.'s board of directors has elected **Andrew D. Hendry** vice-president and general counsel and **Stefan C. Riesenfeld** vice-president, corporate development. Riesenfeld leads corporate development activities for Unisys with responsibility for evaluating and negotiating acquisitions, divestitures, joint ventures and related strategic initiatives. He was treasurer at System Development Corp. when it was acquired by Burroughs Corp. in 1981.

Western Digital Corp. announced the appointment of **A. Keith Plant** to the newly created position of vice-president, corporate development.

Tandon Corp. announced the appointment of **James C. Goetz** to the new position of vice-president of operations, planning and control. Reporting to Charles I. Peddle, executive vice-president and chief operating officer, Goetz is responsible for the financial, computer and administrative functions of Tandon's multinational design, manufacturing and marketing activities.

Goetz joins Tandon with 12 years of financial and operations experience in the computer industry — most recently with Datapoint Corp., at which he served as a division controller and, earlier, as the division's financial planning manager.

Jerry S. Sullivan has been appointed vice-president and program director for the computer-aided design program at Microelectronics and Computer Technology Corp. (MCC). Sullivan comes to MCC from Tektronix, Inc. in Beaverton, Ore., at which he served in several business planning and management capacities.

Efraim Arazi, chairman, president and CEO of Scitex Corp. Ltd., announced the appointment of **Arie Rosenfeld** as president and CEO of the company, transferring the responsibility for overall management of the company to Rosenfeld. Arazi continues as chairman of the board of directors and will contribute to the company in strategic planning and new product and business development. Rosenfeld has been with Scitex 20 years, where he began his career as research and development engineer.

Postal deal

CONTINUED FROM PAGE 113

chairman of the House of Representatives' Subcommittee on Postal Personnel and Modernization, questioned "the decision to enter potentially long-term multimillion dollar contracts without a bidding process or competitive evaluation."

McCloskey's subcommittee plans to hold an oversight hearing and has requested a review by the General Accounting Office.

Computer Sciences Corp., a systems integrator with a strong presence in the federal market, supports the congressional scrutiny of this "unique business arrangement," a spokesman said.

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Perot, a Texas billionaire who founded EDS about 20 years ago, recently announced the formation of the new computer services firm and the hiring of at least eight EDS executives [CW, June 6]. Perot Systems, based in Vienna, Va., referred inquiries to Perot's office in Dallas, but he could not be reached for comment.

Postmaster General Anthony M. Frank issued a statement saying that the Postal Service welcomes the congressional review of the unusual contract and is studying the protests by EDS and Planning Research.

The complex contract initially calls for studies of postal operations to determine methods of making them more efficient, such as using a nationwide computer network to improve the mail transportation system. The three-month study phase has a fixed price of $500,000.

Afterward, the Postal Service anticipates approving the suggested projects and awarding the implementation business to Perot Systems. Each project will continue for at least 10 years.

The implementation phase will be a shared-savings contract whereby Perot Systems will earn a yet-to-be-determined percentage of the cost savings attributed to the project. The contract also states that Perot Systems has the exclusive right, for the next five years, to implement its recommendations.

Congressional sources said it appeared as though the contract had been written by Perot's attorneys.

"This $500,000 contract is nothing. It's what it's going to lead to that may be very profitable for Perot," said James F. Kerrigan, director of Input, Inc.'s federal market research program in Vienna. The Postal Service reportedly is seeking savings of up to $4 billion a year under the Perot Systems contract.

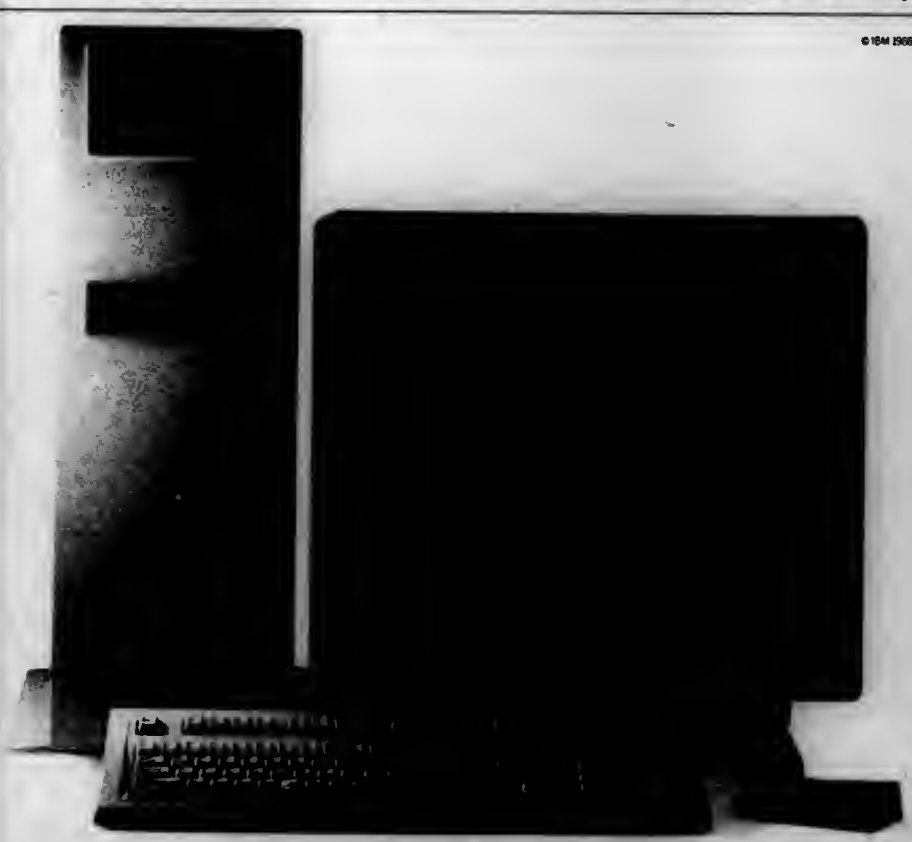
'Serious problems'

Kerrigan said there seems to be little justification for the sole-source nature of the contract, since there are many companies that could provide the same services. "I would think that the Postal Service would have very serious problems with that contract in the event of a protest," he said.

EDS and Planning Research argued that the contract gives Perot Systems a virtual lock on Postal Service computer contracts for at least 10 years, contrary to the Brooks Act requirements for competitive bidding for computer services.

EDS also complained that the contract does not use the term "computer services" although it undoubtedly involves them. Furthermore, EDS said, the fact that the shared-savings contract will use Perot Systems' own calculations represents a conflict of interest.

Lynn Bateman, president of Government Counselling Ltd., a Springfield, Va.-based procurement consulting firm, defended the shared-savings contract as a good deal for the government. "The government has been doing its own work inefficiently for too long, and it's about time we started looking at new ways to do things."



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MERGERS & ACQUISITIONS

Autodesk, Inc. announced that it has acquired a majority interest in **American Information Exchange Corp.** in Palo Alto, Calif.

American Information Exchange develops software that facilitates information sharing within and between organizations. It will operate as an independent entity, with Autodesk representation on its three-member board of directors.

Bechtel Group, Inc. announced the acquisition of **Technology Applications, Inc.** Headquartered in Jacksonville, Fla., Technology Applications specializes in advanced computing technology for the power, process petrochemical and computer science industries. Financial terms of the acquisition were not disclosed.

Computer Horizons Corp. has completed the acquisition of **Technical Resources Group, Inc. (TRG)**, a Philadelphia-area software professional services consulting company, for an undisclosed amount of cash.

TRG's software development activities have been primarily performed in IBM and Digital Equipment Corp. environments and in markets consisting of major chemical, financial services and pharmaceutical companies.

Sungard Data Systems, Inc. has acquired **EDP Security, Inc.** a leading provider of software for developing and maintaining computer-center disaster recovery plans. More than 1,300 customers worldwide have purchased Disaster Plan 80, EDP's principal product. Based in Littleton, Mass., EDP has been developing multiple versions of its disaster-recovery planning software for more than eight years.

Intelogic Trace, Inc. announced that its computer leasing subsidiary, **Tenzone, Inc.**, has acquired all of the substantial assets of **Southwest Computer Sales, Inc.**, a San Antonio-based lessor and remarketer of IBM mid-range computer systems with sales offices in Denver and Salt Lake City. Southwest Computer Sales employs 25 people and has 1,200 customers nationwide.

MAI Basic Four, Inc. has acquired the assets of **T & E Systems, Inc.** T & E Systems is best known for its wholesale electrical/electronic distribution management software system. It is headquartered in Walpole, Mass.

Insurance hiring is slack

Industry traditionally pays well for MIS, but it's a buyer's market now

BY ALAN RADDING
SPECIAL TO CW

Headlines in the past six months suggest that the insurance industry is in trouble. Insurers whose profits were already under pressure from growing competition are feeling more heat from developments such as the October stock market crash, limits on auto policy premiums and the high cost of health care.

The difficulties have thwarted the growth of MIS employment in the insurance industry and prompted many companies to trim their staffs. However, some companies continue to replace departing workers by hiring candidates with precisely defined skills.

In Hartford, Conn., the insurance industry's capital, companies are trying to slim down by trimming staffs; hiring for data processing is the slowest it has been in 10 years, according to Bob Hefner, managing director of recruitment firm Source EDP.

Cover all the bases

With talk of a possible recession in 1989, even companies that have not experienced specific problems are "anticipating a dip" in business and cutting back, Hefner says.

Burt Israel, manager of data processing placement at Robert Half International, Inc. in Hartford, confirms the slowdown but sees openings for senior people working in advanced technologies such as telecommunications, networking, voice/data integration and fourth-generation languages.

The jobs that Source EDP's Hefner is being called upon to fill are replacement positions. For instance, Hefner might be requested to find a payroll analyst with a minimum of seven years in the insurance industry using a certain software package. Demand, he says, is "faint, but alive."

On the upswing

Boston insurers, which tend to offer a wider array of coverage than the life insurance-oriented firms in Hartford, have experienced a downswing but are coming out of it, according to Steve McMahan, Source EDP managing director in Boston.

"Boston hit the skids a year ago and is already rebounding," McMahan says. "They are looking for specialists — very specific applications-oriented people," McMahan says. "They do not want the middle management person who has generalized skills."

Massachusetts Mutual Life Insurance Co. in Springfield, Mass., has avoided the belt-tightening common among bigger players in Boston and Hartford.

Massachusetts Mutual currently has 20 MIS openings, a typical number, reports Chris DeSaulniers, associate director of employment at the company. The openings are generally replacement positions, half of them applications oriented and half in technical systems and networks, DeSaulniers says.

The insurance industry remains an IBM bastion, although it is seeing increased use of Digital Equipment Corp. machines. The standard recruit, Hefner says, is an IBM programmer with experience in COBOL, CICS, DB2, and MVS. But, while those recruits were being snapped up six months ago, they are now being bypassed for candidates with more specialized skills.

As hiring has gone slack, salaries have stayed generally flat. In Boston, salaries for experienced MIS professionals start at around $35,000, McMahan reports, although someone with specialized skills can make much more. Hefner reports a similar salary base in Hartford and expects pay to rise 5% to 6% in the coming year.

At Massachusetts Mutual, experienced people can start at as low as $25,000 a year, although project managers can make twice that, Desaulniers says.

McMahan says that a lot of MIS executives jumped from insurance to banking in pursuit of better earnings opportunities in the past year.

Future prospects good

The recruiters expect hiring to pick up later in the year because the insurance companies have managed the cutbacks mainly by delaying development, some of which cannot be postponed indefinitely. "If nothing else, there are statutory changes in 50 different states which have to be made," Hefner says.

In the long run, employment prospects look healthy. The U.S. Department of Labor expects the financial services industry, which includes insurance, to see a 70% boost in demand for systems analysts and DP professionals by the end of the century; demand for programmers is expected to jump about 57%.

McMahan cautions MIS professionals about reading too much into the current slump. "Don't base your career on headlines. Insurance will always be around," he says.

Radding is a Boston-based author specializing in business and technology.

Insurance income

Salaries for selected positions in the insurance industry tend to be higher than the averages across all industries

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83. Programmer Methods Analyst
90. Dir Mgr Supv DA/WP
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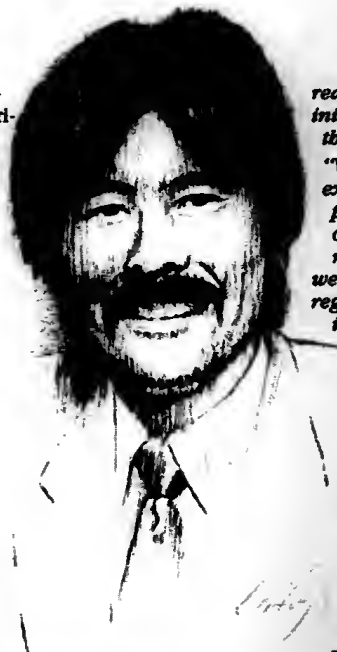

Cesar Namba is Assistant Vice President for MIS Recruitment at Imperial Corporation of America (ICA) in San Diego, California. ICA is a financial services organization that has savings and mortgage institutions in 20 states.

For Cesar, filling important MIS/DP positions is the name of the game. Recently, ICA embarked upon a change in part of its corporate technology, and that meant that Cesar had to go to work finding qualified personnel. And for reaching the best possible candidates, he turned to *Computerworld.*

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To apply, prepare and submit an Application for Federal Employment SF-171 to Joyce Gilbert, Announcement 88-IS-10B or 88-IS-10C, U.S. Department of Energy, Office of Personnel, Room 4-H088, 1000 Independence Avenue, SW, Washington, DC 20585. U.S. Citizenship is required. For additional information call (202) 586-5992. Applications must be received by close of business, July 15, 1988.

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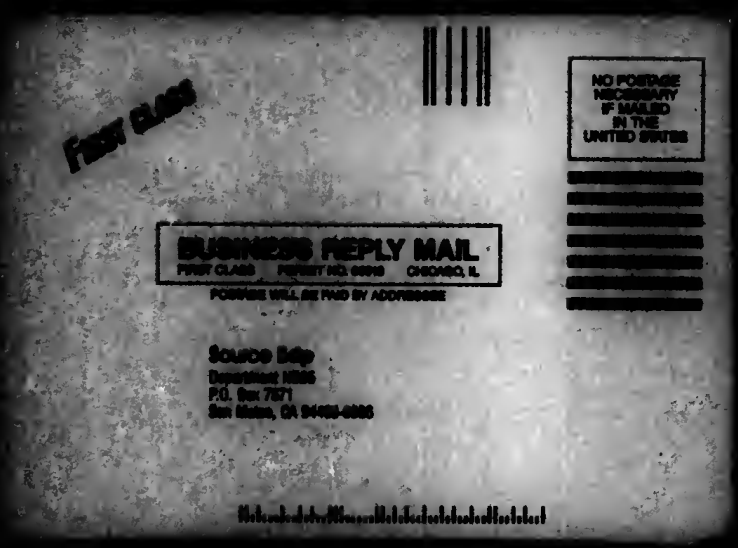

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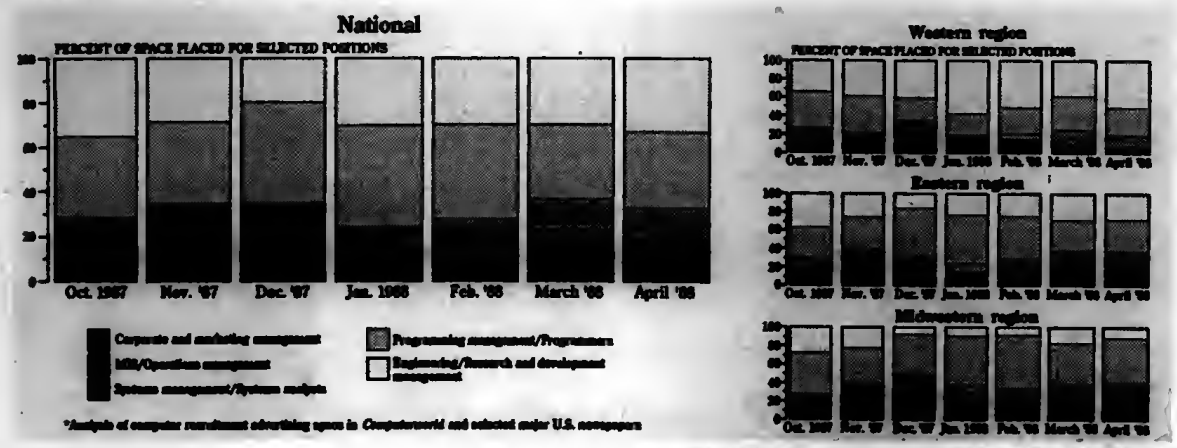

*Analysis of computer recruitment advertising space in *Computerworld* and selected major U.S. newspapers

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CW CHART

MARKETPLACE

Memory prices upwardly mobile

High cost of DRAM chips also holds up PC values in secondary market

BY DAVID A. LUDLUM
CW STAFF

The short supply of dynamic random-access memory (DRAM) chips is making itself felt in the market for used computer equipment, where the surging cost of the DRAM chips is boosting prices of memory expansion boards and holding up values of personal computers.

Upward pressure on the prices of used gear is coming from a general recognition of the increased value of memory chips, particularly the 256K-bit DRAM, as well as price hikes some manufacturers have imposed on new equipment as a result of the scarcity of such chips.

Prices of 256K-bit DRAMs on the spot market — where transactions are usually in quantities of 100 or less — have ballooned from less than $2 per chip a year ago to more than $10 currently [CW, May 16].

The most visible impact of the chip shortage on new equipment prices came June 10, when Digital Equipment Corp., citing the high cost of DRAM chips, raised the prices of its processors an average of 3.5% and those of add-on memory products an average of 35%.

Potential users may be able to turn to the used marketplace for memory boards that are not immediately available from DEC or may find the prices of used boards more attractive than usual for equipment DEC has subjected to a relatively large markup, according to Dennis Lynch, president of Merida Trading Group, a dealer of used DEC equipment in Woburn, Mass.

"A 35% increase on some of these boards really has to make you wake up and smell the coffee," Lynch said. DEC imposed relatively large price increases on memory boards for newer processors, such as Microvaxes and the VAX 8000 series, and boards with capacities of 4M to 32M bytes, he said.

Side effects

Prices of used DEC memory boards have risen about 15% to 35% in the last month, according to Ray Marcoux, purchasing manager at Merida. Those increases also tend to be higher for newer and larger boards. But Lynch noted that the availability of new boards or increases in their prices can affect the used market in unpredictable ways.

"We're opportunists here. A used board could go up in price 100%," he said.

Lynch said users might be able to sell their used high-end memory boards for more than they paid under the best circumstances, such as when the user acquired the boards at a discount and a buyer needs them right away. But in general, the chip shortage stands only to bring users selling their boards a few more dollars. The user "won't take a beating as he has in the past," Lynch said.

Lynch noted that prices of used DEC-compatible memory boards have increased in value substantially, prompting his firm to hold onto them rather than resell those it acquires at a minimal markup, as it usually does.

Price increases in the used equipment market have not been limited to the DEC environment, however. The DRAM shortage pushed up the cost of 512K-byte memory boards for Wang Laboratories, Inc. PCs 25% to 40% from March to April, according to David Tanny, a financial consultant at Norcomex Ltd. in Concord, Ontario, a dealer of used Wang equipment. The price of one board rose from $450 to $575, Tanny said.

Prices of chips and boards have fluctuated significantly at a historically high level, Tanny added. "People don't know at which price they should be selling their equipment," he said. "You're pricing them on a daily basis."

Tanny also noted that when manufacturers raise prices on their memory expansion kits for equipment — as Apple Computer, Inc. recently did — the action drives up prices of comparable used equipment already containing the expanded memory.

> "PRICES HAVE BEEN much more stable lately due to the chip situation rather than drifting down."
>
> CAMERON HALL
> BOSTON COMPUTER EXCHANGE CORP.

That phenomenon, along with a general recognition of the increased value of memory boards on the part of buyers and sellers, has held up prices of used PCs bought and sold through the Boston Computer Exchange Corp., according to officials of the exchange, which serves as a broker for used PCs and other equipment.

"Prices have been much more stable lately due to the chip situation rather than drifting down," said Cameron Hall, vice-president of the Boston Computer Exchange. "It's keeping prices up because the RAM has value. Users are aware of it."

Hall cited the hypothetical example of an IBM PC AT with 2M bytes of RAM. That calls for eight 256K-byte memory banks with nine chips per bank — including one parity chip — for a total of 72 256K-bit chips. A price increase of $9 per chip — from $3 to $12 — in the last six months translates to a rise in value during that time of $648.

During the past two or three months, Hall said, prices have been steady for many used PCs, particularly those with expanded memory, and she attributed the trend largely to the increased value of memory chips.

What's it worth?

The shortage has also prompted calls to the Boston Computer Exchange from individuals offering to sell memory boards they previously considered to be of negligible value, Hall said.

Norcomex's Tanny said some dealers of memory expansion boards are concerned with a deterioration in quality of memory chips from specific, generally reliable suppliers, which the dealers associate with the memory chip shortage.

"We have had what I consider to be a high number of bad boards that we've had to have repairs on," he said. "People are concerned about the quality of the chips coming through. Chips are being priced on the basis of who they're coming from and where."

Ludlum is a *Computerworld* senior writer.

The BoCoEx Index

Closing prices report for the week ending June 17, 1988

	Closing price	Recent High	Recent low
IBM PC Model 076	$825	$850	$650
XT Model 086	$1,200	$1,200	$875
XT Model 089	$1,525	$1,550	$1,100
AT Model 099	$2,300	$2,450	$1,800
AT Model 239	$2,050	$2,750	$2,125
AT Model 339	$3,375	$3,700	$2,625
PS/2 Model 30	$1,600	$1,600	$1,450
PS/2 Model 60	$2,750	$3,100	$2,450
Apple Macintosh 512	$625	$700	$575
512E	$850	$925	$850
II	$3,225	$3,925	$3,100

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Vendors are invited to submit proposals on any or all of the following three areas (singly or in combination): (a) hardware, (b) customized software and operating systems, and/or (c) off-the-shelf software.

Copies of this RFP may be obtained by contacting: Paul Fitzpatrick, Director, Bureau of Operations Research, FDNY, 250 Livingston Street, Brooklyn, NY 11201. Phone: 718-488-1758/1788. A non-refundable fee of twenty five ($25.00) dollars in cash or certified check is required.

The Pre-proposal Conference will take place on Monday, July 18, 1988 at 10:00 A.M. in the Commissioner's Conference Room, 250 Livingston St. - 7th floor, Brooklyn, NY. Proposals must be received no later than 4:00 PM, 8/1/88.

STATE OF ALASKA
DEPARTMENT OF ADMINISTRATION
DIVISION OF FINANCE
REQUEST FOR PROPOSALS

PROJECT: ASPS 88-0045, State Automated Payroll System

Sealed proposals will be received at the Department of Administration, Division of Finance, State Office Building, Juneau, until 3 p.m. prevailing time, August 1, 1988.

DESCRIPTION OF WORK: Provide all effort necessary to purchase, modify, and install a payroll software package that supports a minimum of 15,000 employees, meets the State's defined needs, and provides flexibility for future growth.

ADDRESSES: For those who intend to submit a proposal on this project, copies of the request for proposals can be obtained without charge from: Department of Administration, Division of Finance, P.O. Box C, Juneau, AK 99811-0204, or telephone (907) 465-2340. Additional data is available for inspection at: Department of Administration, Division of Finance, State Office Building, Juneau.

BONDING: $10,000 Bid Bond, 100% Performance Bond required.

PRE-PROPOSAL CONFERENCE will be held in the Commissioner's Conference Room, Department of Administration, State Office Building, Juneau, at 9 a.m., July 7, 1988.

The City of New York Financial Information Services Agency is seeking proposals for a software data communications compression package to work with IBM/DC.

All parties interested in receiving a copy of the request for proposal which contains the specifications should contact:

Ms. Marlene Doran-Cintron
Financial Information Services Agency
111 Eighth Avenue, 13th Floor
NEW YORK, NY 10011
212-396-3062

DEPARTMENT OF SOCIAL SERVICES
ATTENTION: CICS TESTING & DEBUGGING SOFTWARE VENDORS

The New York City Human Resources Administration Office of Data Processing is seeking proposals for permanent acquisition of a CICS testing and debugging software product for use with its CICS on-line inquiry network.

This product must have the capability to: test and debug programs written in MACRO ASSEMBLER CICS language; test and debug programs written in CICS COMMAND LEVEL COBOL; monitor programs written in CICS/OMS 1.41 with on-line APS features; to ease field services by referencing COBOL or ASSEMBLER language listing and names.

Software must run on IBM 4381 P3R14 and future upgraded mainframes; MVS/XP with capability to interface in future with MVS/TA, VM/SP, VM/CMS & VM/XA.

Proposals will be received by Human Resources Administration/Office of Data Processing until 5:00 pm., July 15, 1988.

Requests for proposals may be obtained from Stella Wing, Telephone No., (212) 360-3749/3747.

MISSISSIPPI CENTRAL DATA PROCESSING AUTHORITY

Sealed proposals will be received by the CDPA, 301 N Lamar St., 301 Building, Suite 308, Jackson, MS 39201 for the following equipment and services:

Request for Proposal No. 1363, due Wednesday, July 13, 1988 at 3:30 p.m. for the acquisition of 30 MS/DOS-based microcomputer workstations for MISSISSIPPI STATE UNIVERSITY. Charge $10.00

Detailed specifications may be obtained free of charge from the CDPA office or at the specified cost by submitting a written request accompanied by the appropriate payment. NOTE: John F. Kennedy Center for Computer Research

Detailed specifications may be obtained free of charge from the CDPA office or at the specified cost by submitting a written request accompanied by the appropriate payment. NOTE: John F. Kennedy Center for Computer Research

Sealed proposals will be received at the Department of Administration, Division of Finances, State Office Building, Juneau, until 3 p.m. prevailing time, August 1, 1988.

DESCRIPTION OF WORK: Provide all effort necessary to purchase, modify, and install a payroll software package that supports a minimum of 15,000 employees, meets the State's defined needs, and provides flexibility for future growth.

ADDRESSES: For those who intend to submit a proposal on this project, copies of the request for proposals can be obtained without charge from: Department of Administration, Division of Finance, P.O. Box C, Juneau, AK 99811-0204, or telephone (907) 465-2340. Additional data is available for inspection at: Department of Administration, Division of Finances, State Office Building, Juneau.

BONDING: $10,000 Bid Bond, 100% Performance Bond required.

PRE-PROPOSAL CONFERENCE will be held in the Commissioner's Conference Room, Department of Administration, State Office Building, Juneau, at 9 a.m., July 7, 1988.

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SYSTEMS	MIPS (Millions of Instructions Processed Per Second)	MEGABYTES
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8375-60	0.3	8 to 16
4331-2	0.58	1 to 4
9/36-300	0.58	8 to 8
9/36-400	0.75	8 to 8
8375-60	0.75	2 to 16
4341-1	0.89	2 to 4
9/36-600	0.99	8 to 16
9/38-700	1.1	16 to 32
4381-11	1.4	4 to 16
4381-5	1.45	2 to 12
4341-2	1.5	2 to 16
8377-60	1.6	8 to 16
4341-12	1.85	8 to 16
14381-21	2.1	8 to 16
4381-1	2.1	4 to 16
4381-2	2.7	4 to 32
4381-12	2.7	8 to 32
14381-22	3.1	16 to 32
4381-13	3.6	8 to 32
3083EX	4.4	8 to 32
4381-3	4.8	8 to 32
14323-23	4.7	8 to 32

SYSTEMS	MIPS (Millions of Instructions Processed Per Second)	MEGABYTES
*4381-21E	4.7	16 to 64
3033UP	5.0	4 to 24
4381-14	5.3	16 to 32
3083BX	5.4	0 to 32
43080-120E	5.5	32 to 64
14381-24	5.5	16 to 64
4381-22E	5.5	16 to 64
3083JX	5.5	0 to 64
3090-100	5.5	32 to 64
3081-D	5.5	16 to 64
3083-[illegible]	5.5	16 to 64
3081G	5.5	16 to 64
3083-[illegible]	5.5	32 to 64
3083MX	5.5	16 to 64
3[illegible]	5.5	32 to 64
3[illegible]	5.5	64 to 128
3[illegible]	5.5	32 to 128
3[illegible]-200	31.0	64 to 128
3[illegible]-400	31.0	64 to 128
3[illegible]-400E	39.0	128 to 256
3090-500E	57.0	128 to 256
3090-600E	76.0	128 to 256

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SYSTEMS	MIPS	MEGABYTES
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AS9070	18.0	16 to 64
AS/VL-80	17.1	32 to 256
AS9080	20.0	16 to 64
ASXL-60	28.0	64 to 256
ASXL-80	50.0	64 to 256
ASXL-90	57.0	128 to 512
ASXL-100	80.0	128 to 512

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Randolph is not responsible for the accuracy of the MIPS data. Cycle times will vary based on hardware/software configurations, and system manufacturers continually modify computer models as design improvements in hardware and software arise.

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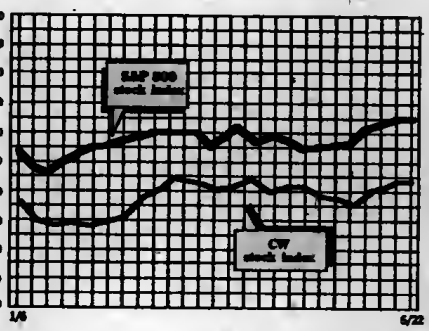

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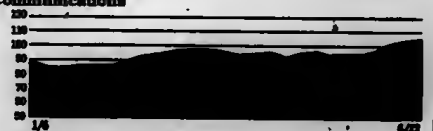

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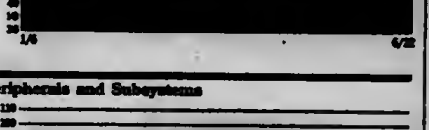
Semiconductors

Peripherals and Subsystems



Leasing Companies

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, JUNE 22, 1988

E		PRICE				
X		52-WEEK RANGE (1)	CLOSE JUNE 22 1988	WEEK NET CHANGE	WEEK PCT CHANGE

Communications and Network Services

N	AMERICAN INFO TECHS CORP	100	74	84.38	1.0	1.2
O	ANDREW CORP	18	11	16.75	0	0
O	ARTEL COMM CORP	3	1	3	0.3	10.3
N	AT&T	35	26	27.5	0.3	0.8
O	AVANT GARDE COMP INC	8	3	3	-0.1	-0.8
O	AVANTEK INC	14	6	7	0	0
N	AYDIN CORP	23	14	19.63	-0.6	-4.5
N	BELL ATLANTIC CORP	80	61	74.38	1.4	1.8
N	BELLSOUTH CORP	44	28	43.5	0.6	0.6
O	COMPRESSION LABS INC	6	3	4.75	-0.3	-5
O	COMPUTER NETWORK TECH	3	1	1.22	-0.1	-0.3
O	CONTEL CORP	45	25	34.13	0.4	1.1
O	DATA SWITCH CORP	10	4	8	-0.1	-1.2
O	DIGITAL COMM ASSOC	45	20	35.38	-0.8	-2.1
O	DYNATECH CORP	22	14	21.5	1	4.9
O	FIBRONICS INTERNATIONAL INC	7	3	3.75	0.3	7.1
O	GANDALF TECHNOLOGIES	6	5	7.38	-0.1	-1.7
O	GENERAL DATACOMM INDS	5	3	3.38	-0.1	-0.8
N	GTE CORP	45	29	38.88	0.5	1.3
O	INFOTRON SYS CORP	14	6	12.75	0	0
N	ITT CORP	56	42	53	1.5	3.7
N	M/A COM INC	18	7	10.63	0.4	3.7
O	MCI COMMUNICATIONS CORP	18	7	14.25	-0.5	-3.3
O	MICOM SYS INC	17	7	14.88	-0.5	-3.3
O	NETWORK EQUIPMENT TECH INC	25	13	19	0.8	4.1
O	NETWORK SYS CORP	13	7	11.63	0.5	4.5
N	NORTHERN TELECOM LTD	24	14	19.13	0	0
O	NOVELL INC	30	12	27.88	1.5	5.7
N	NYNEX CORP	78	58	68.13	1.6	2.4
N	PACIFIC TELESIS GROUP	34	23	30.88	0.8	2.8
O	PARADYNE CORP	9	4	8.88	0.4	4.8
A	PEROT, CORP	6	1	4.75	-0.1	-2.5
A	PLESSEY PLC	28	23	26.75	-0.4	-1.3
N	SCIENTIFIC ATLANTA INC	20	9	13.88	-0.6	-4.3
N	SOUTHWESTERN BELL CORP	46	32	36.88	1	2.8
O	3 COM CORP	28	12	19.88	0.1	0.5
N	UNDERHAHN BASS INC	20	9	12.5	0	0
N	U S WEST INC	50	45	50.75	0.9	1.8

Computer Systems

O	ALLIANT COMPUTER SYS	22	5	7	0.8	5.7
O	ALPHA MICROSYSTEMS	6	3	5.88	-0.1	-2.1
O	ALTOS COMPUTER SYS	16	6	8.13	-0.1	-1.4
A	AMDAHL CORP	36	19	34	0	0
O	APOLLO COMPUTER INC	23	6	14.88	-0.1	-0.6
O	APPLE COMPUTER INC	60	36	46.63	-0.3	-0.6
N	BOLT BERANEK & NEWMAN	25	12	17.25	0.3	1.8
O	BRITTON LEE INC	4	1	2.88	-0.2	-6.5
O	COMPAQ COMPUTER CORP	75	24	62.5	3.1	5.2
O	COMPUTER AUTOMATION INC	10	6	7.5	-0.1	-1.9
A	COMPUTER CONSOLES INC	10	3	6.88	0	0
O	CONCURRENT COMP CORP	24	11	17	0.5	1.5
N	CONTROL DATA CORP DEL	30	59	26.13	-1.1	-4.1
O	CONVERGENT TECH	6	3	3.88	0	0
O	CONVEX COMPUTER CORP	17	6	8.75	-0.1	-1.4
N	DIGI INTL INC	116	47	57.5	1.5	2.7
O	DIGITAL EQUIP CORP	133	65	110.88	0.5	0.5
N	DATA GEN CORP	37	16	22.38	0.5	2.3
O	DATAPOINT CORP	6	3	5.38	-0.1	-3.5
O	DIGITAL EQUIP CORP	200	95	113.38	-0.5	-0.4
O	FLOATING POINT SYS INC	13	3	2.75	-0.5	-6.8
O	GOULD INC	34	9	14.63	-0.8	-2.8
O	HARRIS CORP	41	22	29.88	0.1	0.3
O	HEWLETT PACKARD CO	74	38	51.88	-1.8	-3.8
O	HONEYWELL INC	91	69	70.63	-0.5	-0.7
N	IBM	176	102	123	-4.1	-3.2
O	INFORMATION INTL INC	15	6	14	0.3	1.8
O	IPL SYS INC	3	1	2.06	-0.1	-4.6
O	KAMS COMPUTER CORP	14	4	4	-0.5	-3.8
N	MATSUSHITA ELEC INDL LTD	228	103	197.88	-2.5	-1.2
O	MEGADATA CORP	6	3	2.75	-0.1	-4.3
O	MENTOR GRAPHICS CORP	28	14	26.25	1.8	3.7
N	NBI INC	14	4	4.13	-0.3	-6.7
N	NCR CORP	62	50	48.88	-0.6	-1.4
N	PRIME COMPUTER INC	31	13	15.88	-0.4	-2.8
O	PYRAMID TECHNOLOGY	10	6	10.25	1.8	10.8
O	STRATUS COMPUTER	29	15	26.75	0.8	0.8
O	SUN MICROSYSTEMS INC	45	14	36.25	2.1	6.2
O	SYMBOLICS INC	3	1	1.25	0	0
O	SEQUENT COMPUTER SYS INC	20	8	18.13	-0.6	-1.4
O	TANDEM COMPUTERS INC	37	19	20.38	0.8	-1.5
N	TANDY CORP	57	28	48.13	0.8	1.8
O	ULTIMATE CORP	57	22	12.88	-0.8	-1.8
N	UNISYS CORP	46	24	37.13	0.1	0.3
A	WANG LABS INC	19	10	10.63	-0.1	-1.2

Software & DP Services

O	ADVANCED COMP TECH	8	1	1.19	0.1	5.6
O	AGS COMPUTERS INC	20	11	26.13	-1.4	-5
O	AMERICAN MGMT SYS INC	20	9	16.75	0.8	1.8
O	AMERICAN SOFTWARE INC	18	6	14	-1	-6.7
O	AMICOMP INC	11	6	10.5	0	0
O	ANALYSTS INTL CORP	10	4	7.88	-0.1	-1.8
O	ASHTON TATE	10	13	27	2.8	11.5
O	ASK COMPUTER SYS INC	16	6	14.13	-0.1	-0.8
O	AUTODESK INC	24	12	20.88	1.8	9.2
N	AUTO DATA PROCESSING	59	38	40.13	-0.4	-0.8
O	BOOLE & BABBAGE INC	12	6	9.38	0.1	1.4
O	COMPUTER ASSOC INTL INC	57	16	30.75	1	3.4
O	COMPUTER HORIZONS CORP	18	8	10.88	-0.5	-2.2
O	COMPUTER SCIENCES CORP	73	36	43.25	0.5	1.2
O	COMPUTER TASK GROUP INC	16	8	12.75	0.3	2
O	COMSHARE INC	17	7	9	-0.5	-5
O	COMPUTER INC	22	12	16.75	0.5	2.7
O	CULLINET SOFTWARE INC	14	4	8.13	-0.4	-4.4
O	DUQUESNE SYS INC	38	16	19.25	-0.4	-1.8
N	DATA ARCHITECTS INC	19	8	13.75	0	0
O	GENERAL MTRS (CL E S)	61	30	37.75	-0.5	-1.3
O	HOGAN SYS INC	10	3	3.38	-0.5	-30.5
O	INFORMIX CORP	21	12	20	0.3	1.1
O	INTELLICORP INC	10	3	3.75	-0.5	-10.5
O	KEANE INC	14	9	11.25	0	0
O	LOTUS DEV CORP	40	25	31.88	-0.4	-1.7
O	MANAGEMENT SCI AMER	14	6	8	0	0
O	MICRO PROD LTD CORP	7	2	2.44	-0.2	-8.3
O	MICROSOFT CORP	75	37	67	3	4.7
O	MORINO ASSOCIATES INC	21	7	10	0	0
O	NATIONAL DATA CORP	24	20	23.38	-0.1	-0.6
O	ON LINE SOFTWARE INTL INC	22	6	8.38	-0.5	-20.2
O	ORACLE SYS CORP	20	9	10.75	0	0
O	PANSOPHIC SYS INC	26	11	14.63	-0.5	-3.3
O	POLICY MGMT SYS CORP	30	18	23.25	-1.5	-6.1
O	PROGRAMMING & SYS INC	14	7	11.75	0	0
O	REYNOLDS & REYNOLDS CO	28	14	18.25	0	0
O	SSI CORP	20	10	20	1.1	0
O	SHARED MED SYS CORP	20	10	21.5	-0.5	-1.1
O	SMS SOFTWARE INC	10	6	8.13	0.3	3.9
O	SOFTWARE PUBG CORP	33	6	22.38	1.4	6.6
O	STERLING SOFTWARE INC	12	6	6.88	0	0
O	SUNDARD DATA SYS INC	30	10	19	0.8	2.7
O	SYSTEMATICS INC	33	19	22.5	0.8	3.4
N	SYS. SOFT INC	26	7	10	0.8	2.7
O	VAI SOFTWARE INC	27	7	12.25	-0.8	-6.8

Semiconductors

N	ADV MICRO DEVICES INC	20	8	10	0	0
N	ANALOG DEVICES INC	24	8	10	-0.8	-4.8
O	ANALOGIC CORP	13	6	7.38	0	0
O	INTEL CORP	42	19	36.63	1.5	6.8
O	LSI LOGIC CORP	15	7	12	0	0
N	MOTOROLA INC	74	35	53.88	2.4	4.6
N	NATL SEMICONDUCTOR	22	10	14.63	0.1	0.8
N	TEXAS INSTRS INC	68	38	50	1.8	2.8
A	WESTERN DIGITAL CORP	30	11	15.13	-0.8	-3.2

Peripherals

O	ALLOY COMP	13	3	3.5	0	0
O	AM INTL INC	9	3	4	0.3	8.7
O	AST RESH INC	31	6	10.5	0	0
O	AVID TROL TECH CORP	7	3	5.25	0.9	16.8
O	BARCTEC INC	14	6	8	0	0
O	CIPHER DATA PRODS INC	13	6	8.13	0.3	3.7
A	COGNITRONICS CORP	9	3	3.75	-0.1	-2.7
O	COMPUGRAPHIC CORP	38	16	26.88	0	0
A	DATAPRODUCTS CORP	24	7	10	0.1	1.3
A	EXBYMAN CORP	8	3	7.5	0.8	11.1
O	EASTMAN KODAK CO	71	39	45.38	0.8	1.8
O	E M C CORP MASS	35	6	6	0.1	1.8
O	EMULEX CORP	8	4	6.88	0.1	1.9
O	EVANS & SUTHERLAND	30	14	15	-2	-11.8
O	IDOT CORP	9	3	3.75	0.1	4.2
O	INTERLEAF INC	24	11	13.38	0.8	3.9
O	KONSAN CORP	4	1	4.13	0.2	4.7
O	LEE DATA CORP	7	3	3.5	0	0
O	MAGNETIC SYS CORP	6	1	2.25	-0.3	-7.7
O	MAXTOR CORP	35	9	12.88	1.8	15.7
O	MICROPOLIS CORP	18	13	17.5	-0.3	-1.4
O	MINISCRIBE CORP	17	9	11.5	0.8	6.5
N	MINNESOTA MING & MFG CO	84	48	68	0.5	0.8
A	MSI DATA CORP	19	6	14.5	-0.5	-4.1
O	PERIPHERAL COMPUTER PRODUCTS INC	7	4	5.88	0	0
O	PRIAM CORP	8	1	1.88	0.1	7.1
O	PRINTRONIX INC	13	7	10.13	-0.1	-1.2
N	QMS INC	27	6	9.63	-0.1	-1.3
O	QUANTUM CORP	16	6	11	0	0
O	RAMTEX CORP	6	1	1.13	0	0
N	RECOGNITION EQUIP INC	21	6	7.38	0.5	3.5
O	RICHON INC	11	4	6.88	0	0
O	SCAN TRON CORP	11	7	10.5	0	0
O	SEAGATE TECHNOLOGY	35	16	17.25	-0.5	-1.4
N	STORAGE TECH CORP	4	1	1.75	0.1	7.7
O	TANDON CORP	6	1	2.81	0.1	2.8
A	TEC INC	6	3	3.75	-0.8	-10.7
A	TEKTRONIX INC	43	21	28.38	0.6	2.4
O	TELEVIDEO SYS INC	3	1	1.13	-0.1	-6.6
O	TELEX CORP	73	30	48.38	-1	-2
O	WYSE TECH	40	11	19.25	-0.8	-3.1
N	XEROX CORP	35	30	34.38	-1	-2.8
O	XIDEX CORP	10	6	8.63	0.1	2.3

Leasing Companies

O	CAPITAL ASSOCIATES INTERNATIONAL INC	6	3	4.88	0.3	6.6
A	COMDISCO INC	10	4	6	0.13	2.8
O	CONTINENTAL INFO SYS	37	13	23.88	0.88	2.1
O	PHOENIX AMERN INC	13	6	9.38	0.25	2.8
O	SELECTRAN INC	6	3	2.88	-0.06	-2.9

EXCH: N—NEW YORK; A—AMERICAN; O—NATIONAL; O—OVER-THE-COUNTER; S—SPLIT

O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

Ride the tide

Favorable interest rates, strong dollar lead to upswing

After wavering the previous week, the Dow Jones industrial average rebounded on the tide of a soaring dollar and favorable interest reports last week and hit a post-crash high of 2152.20 on Wednesday, which sent several computer issues soaring. IBM headed a long list of gainers after Tuesday's announcement of its long-awaited AS/400 mid-range line, formerly code-named Silverlake, and jumped 8¼ points from a week earlier to finish Thursday at 125¾.

Other gainers for the week included Compaq Computer Corp., which rose 3¼ points to 61¾ after the Goldman, Sachs & Co. investment house raised its earnings estimate on the personal computer maker; Digital Equipment Corp., which gained 2¾ points to 114¼; Cray Research, Inc., which notched 2¾ points to 86¾; Sun Microsystems, Inc., up 2½ points to 38; Ashton-Tate Corp., which gained 2¼ points to 26¾; and Amdahl Corp., up 2 points to 54¼.

Some firms, however, failed to share in the rally. Prime Computer, Inc. dropped ½ of a point to 15¾; Control Data Corp. slipped ½ of a point to 26; and Hewlett-Packard Co. eased ⅛ of a point to 52¾.

JAMES DALY

Smooth sailing for migration

Series' tools make process easy for System/36, 38 users

BY ROSEMARY HAMILTON
CW STAFF

NEW YORK — With the introduction of the AS/400, IBM has kept at least one very important promise: Current System/36 and 38 users will have a straightforward and relatively easy migration to the new platform.

Developers and users contacted last week who have converted programs noted a few snags in migrations. For instance, Cobol programs do not convert as cleanly as RPG programs. Certain code, such as assembler, that is not supported on the AS/400 will require complete rewrites, and System/36 programs will require more upfront preparation than System/38 programs.

But overall, the migration process went smoothly because of the tools IBM is offering with the new system, programmers said. "I haven't been involved in a migration that's been more simple than this one," said Mark Wasilko, senior vice-president of marketing in the applications products division at Computer Associates International, Inc., which plans to offer its Masterpiece series on the AS/400.

The AS/400 supports three operating modes: a native mode, a System/36 mode and a System/38 mode. The three environments can run concurrently and share data, according to IBM. The System/36 and 38 modes are not achieved through emulation, according to David Schleicher, director of IBM's Rochester Programming Center. Instead, extentions have been built into the new operating system to accommodate the System/36 and 38 programs.

For example, in the case of a System/36 program, the application is running under the OS/400 operating system. But to the user, it appears to be a System/36 environment because the System/36 commands and screen structures are maintained.

Easiest conversion

Moving to the System/38 mode appears to be the easiest of the three possible conversions because System/38 programs are object code-compatible with the new operating environment.

The IBM migration tools can can be thought of as two major facilities: an export tool and an import tool, Schleicher said. The export tools are officially called the AS/400 System/36 and System/38 Migration Offerings. The System/36 offering has a license charge of $1,000, and the System/38 version can be licensed for $2,000. The tools perform such tasks as scanning a program and flagging any aspects that will either require a change or cause a problem in conversion. The Migration Offerings can be licensed now to prepare for an AS/400, which is scheduled to begin shipping in August.

The import function takes place on the AS/400 side and is part of the OS/400 environment. For AS/400 or System/36 environment migration, this import function completes a series of tasks, including recompiling, redefining data as AS/400 data base objects and setting up parameters.

The Marcam Corp., a software developer based in Needham, Mass., recently moved its System/38-based manufacturing software, Prism, to the native AS/400 environment and to the System/38 environment on the new platform.

"Native mode was pretty easy for us, and 38 mode was really just bringing the software over," said Tom Ebling, senior vice-president of product development and support.

Ebling said the move to native mode required manual changes to be made because of the syntax Marcam's programmers used with the System/38 Control Language. He estimated that the entire process took "one to two person-weeks, not working full time."

Schleicher recommended that users spend two to four weeks planning and preparing for a conversion. The actual move to the AS/400 should take less than a week, and at least one week of parallel operations should be maintained.

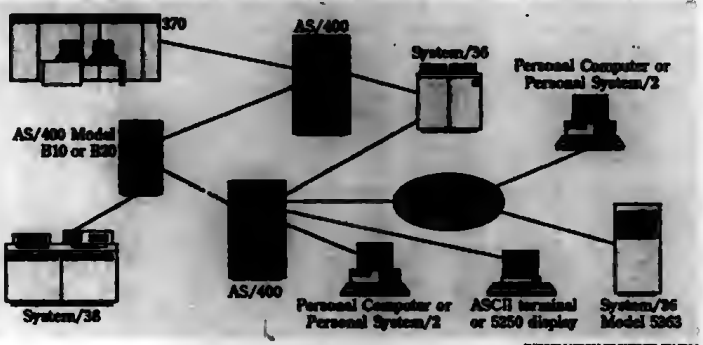
At Ryder System, Inc. in Miami, programmers have ported 1.2 million lines of System/36 code to System/36 mode on an AS/400 Model 60. Dennis Klinger, vice-president of MIS, said the process has had "some bumps, but I'm comfortable with it."

The conversion, which began in late April, was not entirely smooth because "we are not a vanilla RPG shop," added Lyndsay Wells, a senior systems consultant at Ryder. According to Wells, 702 programs were submitted to be recompiled to System/36 mode on the AS/400. Of that group, 450 were written in Cobol 74 and 252 in RPG-II. Wells estimated that the actual recompilation took 11 hours. When completed, 40 programs were not successfully recompiled: only three of that group were RPG-II programs.

Wells said the 40 failures resulted from some glitches in the IBM compiler, which have been fixed by IBM. But the bulk of the errors came about because the Cobol programs were written in the older Cobol, which he called a "much less stringent implementation than the AS/400 Cobol."

Something for everyone

IBM promises that its AS/400 will hook up to mainframes, LANs, PCs and its existing minicomputers



INFORMATION PROVIDED BY IBM
CW CHART

Applications abound

BY ALAN ALPER
CW STAFF

NEW YORK — IBM appears to have learned a lesson from its 9370 debacle.

At the debut of the 9370 21 months ago, IBM provided little in the way of tailored applications for its mid-range processor series. In contrast, the AS/400 family arrived last week with word that some 1,000 applications can already run on the new hardware environment.

In the months preceding the introduction of the AS/400 — previously code-named Silverlake — IBM worked with more than 130 software developers and value-added resellers (VAR) to migrate System/36 and 38 applications to the new platform. Moreover, IBM's Application Systems Division in Atlanta converted 67 System/36 and 38 applications to the new environment.

When IBM introduced the 9370, it said all programs written for its 370 architecture would operate on the machine. Users, however, have said that existing applications run inefficiently on the smaller 9370s, because they were written for larger processors.

The lack of optimized applications is believed to be a major sales inhibitor for the 9370.

The vertical applications offered by VARs are considered key to the AS/400's strategy because IBM expects about 85% of AS/400 sales to be handled by VARs, the firm told analysts at a special meeting last week.

"The success of this product hinges on how well IBM supports its VARs," noted Bart Stuck, president of Probe Research, Inc. "Historically, it's not been IBM's strong point."

IBM helped Delta Airlines convert its travel agency office automation system, originally written to operate on the System/36, to run on the AS/400. "We ported approximately 250 applications in about two days," noted Michael Thurmon, a marketing representative within the airline's automation products division. "It required a little recompiling and tweaking, but it went very smoothly."

OS/400: Beyond tradition

The new AS/400 operating system marks a major departure in operating system philosophy for IBM. OS/400 takes a supermarket approach to operating systems, including in the basic package a large set of diverse functions that are typically sold as separate software programs.

Beyond the traditional system overseer role that an operating system plays, OS/400 provides security; data base and communications support, including network management; application development facilities; and access to customer service and education. License fees for OS/400 range from $5,500 to $55,000.

"To get a comparable environment in the 370 world, you'd have to buy MVS, CICS, DB2, VSAM, Netview and other products," said David Andrews, president of ADM, Inc.

The operating environment supports more than 20 languages, which will be offered as separate program products. RPG-III, the System/38 programming language, has been dubbed a Systems Application Architecture language and will operate under OS/400. A subset of SQL will also run on the AS/400 platform. Other languages include RPG-II, Cobol 85, Cobol 74, C, Basic and Pascal.

Basic elements for application development are included in the operating system, and a separate program product, AS/400 Application Development Tools, offers more advanced tools.

Access to AS/400 customer support and online education are two other standard operating system features.

The customer support service provides users with electronic access to either AS/400 marketing or technical information at IBM. The system also includes locally available functions, such as problem management facilities and question and answer support.

The system's security features govern user access to the field and record levels, but users have the option of working in nonsecured mode.

The operating system relies on an object-oriented architecture, with all resources treated as system objects. It provides single-level storage, treating all storage as one directly addressable space. As a result, users need not know where data is stored when accessing it.

OS/400 has 48-bit addressability, allowing users to write programs of almost limitless size.

ROSEMARY HAMILTON

AS/400 offers SNA protocols, eases net use

BY ELISABETH HORWITT
CW STAFF

Networking and network management capabilities that are optional on IBM's System/36 and 38 are built into the AS/400's operating system, making it potentially easier and less expensive to configure on a network, industry sources said last week.

"It fits in with IBM's claim of greater ease of installation and operation, which the 9370 really lacks," said David Passmore, a principal at Network Strategies, Inc.

The AS/400, previously code-named Silverlake, is an IBM PU2.1 device — the equivalent of an IBM cluster controller. The 9370, as a PU5, or full Systems Network Architecture (SNA) subarea, "requires a lot of work building VTAM lists and routing tables," Passmore said.

Peer networking

Built into the AS/400's operating system, OS/400 is a full set of protocols and programs that enables it to communicate with System/36s and other AS/400s on an SNA peer-to-peer network. The peer-to-peer SNA protocols include LU6.2, PU2.1, Systems Network Architecture Distribution Services, Distributed Data Management (DDM) and Advanced Peer-to-Peer Networking (APPN). Most communications features are set to be available in either late August or late November.

APPN "provides peer networking capabilities for AS/400s and System/36s," said Robert Tunstall, IBM program manager of the Communications Systems Division. APPN, which was not included in previous System/38 offerings, also plays an important role in making it easier for IBM Personal Computers — and eventually Personal System/2s — to access files and peripherals across a distributed network of System/36s and AS/400s, Tunstall said.

APPN keeps track of where users, devices and files are on the network and automatically determines the best route for sending data or queries across intermediate System/36 and AS/400 nodes, Tunstall added. System/38s can also be attached as end nodes to the network.

Enhancements in the AS/400's version of APPN will allow users to give one type of data traffic priority over another — interactive over batch, for example — and will allow users to control how data is routed.

DDM addresses the need for PC and PS/2 users to access resources — in this case, files — across a network of System/36s and AS/400s; System/38s and 370s can also be accessed as DDM hosts. IBM officially made DDM part of its Systems Application Architecture (SAA) in the AS/400 announcement.

AS/400 add-in features include the following:

- AS/400 PC Support Software, another System/36 hand-me-up, turns the AS/400 into a network server that provides shared files and peripherals to PC and PS/2 users, IBM said. One of the program's drawbacks, according to Passmore, is that it does not support IBM's NetBios, and the AS/400's server functions will be out of many users' reach until the advent of OS/2 Extended Edition with built-in LU6.2.
- The AS/400 Communications Utilities program lets AS/400s send batch jobs to a 370 host and to exchange documents with VM hosts using IBM's Professional Office System. Prices for options range from $2,500 to $15,000, with availability scheduled for Nov. 25.
- OS/400 also includes an enhanced version of the System/36's network management functions. The AS/400 can act as a local network management device or as a focal point that collects alerts and other information and passes it on to an IBM 370 host running Netview.

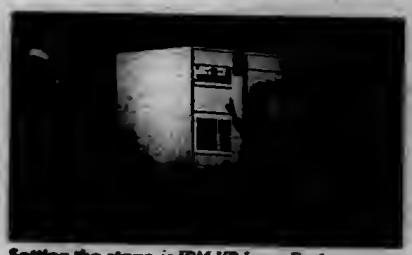
The AS/400 offers some communications features that are missing from the System/36, including a built-in IBM Token-Ring adapter that supports up to 128 devices on AS/400 Models B10 and B20.

IBM subscribes to big-bang theory

It was the best product rollout that money could buy.

From the *Wheel of Fortune* glitz of the IBM worldwide videoconference to the stage shows in cities from Chicago to Portland, Ore., the AS/400 introduction outshone any other IBM announcement in memory.

Why did IBM executives spend the millions needed to do it? "They're market-driven," one Southern MIS manager observed. "They're no dummies."



Setting the stage *is IBM VP Larry Ford*

The June 21 videoconference was beamed to 100,000 customers, prospective customers and IBM business partners worldwide, said Mike Braun, Northeastern area manager for IBM's marketing group.

IBM broadcast the New York press conference simultaneously to 200 U.S. cities and transmitted it on a delayed basis to thousands of international sites.

Rhythm-and-blues combos appeared at five AS/400 introductions coast to coast. On stage at the Civic Opera House in Chicago, a cast of eight IBM marketing representatives warmed up the audience with a parody of the 1960s song "I Heard it through the Grapevine."

The singing IBMers belted out jarring lines like: "I bet you're wondering how I knew/'Bout your plans for Big Blue. Some of those guys in the press/ Tell me all . . . You make me guess." The singers waved copies of *Computerworld*, relabeled "CPU and You," as they sang and danced.

JEAN BOZMAN

Their own

FROM PAGE 1

user advisory council, be was present at many design review meetings in Rochester, Minn., last year. "Some of the users were really outspoken about what they didn't like on the AS/400," he said, "and I know that some of their suggested features were incorporated into the final design."

Ron Rettus, director of advanced planning at IBM's Rochester laboratory, confirmed the give-and-take process. "Many users said: 'Your objective [for the AS/400 design] is right, your implementation is right, and, by the way, you have more work to do.' "

But the final specifications seemed to please most System/36 and 38 users who learned of them last week. "We've had an AS/400 machine installed for several months, and so far our technical people are happy," said Dennis Klinger, vice-president of MIS at Ryder Truck Rental, Inc. in Miami. Ryder reportedly plans to install more than 100 AS/400s at its district administrative centers by this time next year.

Ryder's planned installation of AS/400s replaces an earlier scheme for remote System/36s at its regional offices throughout the U.S. and Canada. "My only concern is not about the hardware platform, but about how long it's going to take for our organization to absorb the new systems," Klinger said.

Divisions of large corporations were busy reviewing the AS/400's specifications and financing plans last week. General Electric Co.'s Consumer Electronics Business Operations division in Plainville, Conn., is exploring the possibility of installing multiple AS/400s to replace five aging System/36 Model 700s. "We might buy them soon if all the numbers come out right," said division MIS director Harry David.

Price is right

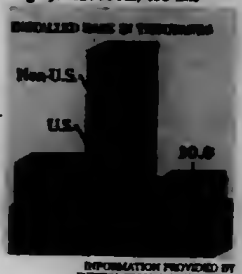
David was referring to his evaluation of IBM's new all-in-one leasing plan and revised maintenance schedule for the System/36 and 38 replacement (see related story page 8). "Price/performance is very attractive," David said, "because it looks like it will be about 30% less than it was for the older machines."

Even small customers — the most targeted market for the System/36 and 38 replacement — seemed pleased with the AS/400. "It doesn't make any sense to sink more money into a System/36 upgrade," said Earl Cunningham, the financial controller and MIS manager at Ekblad Tool Co., a 65-person key manufacturer that recently went through a $16,000 upgrade to its IBM 5362. The entry-level AS/400 B10 and B20 models cost just more than $20,000 for an entire system, Cunningham noted.

Some customers questioned at the Chicago announcement of the AS/400 said they believe IBM's close coupling of the AS/400 with mainframe products like IBM's DB2 relational data base management system, may eventually nudge some Digital Equipment Corp. VAXs out of IBM shops. Any such movement is more likely to be gradual than immediate, users cautioned. "We're not going to run out and swap out all our VAXs," said Fred Baker, an MIS manager at Illinois Bell.

'Come to mama!'

The installed base of IBM System/34, 36 and 38 machines represents a potentially lucrative target for IBM's AS/400 line



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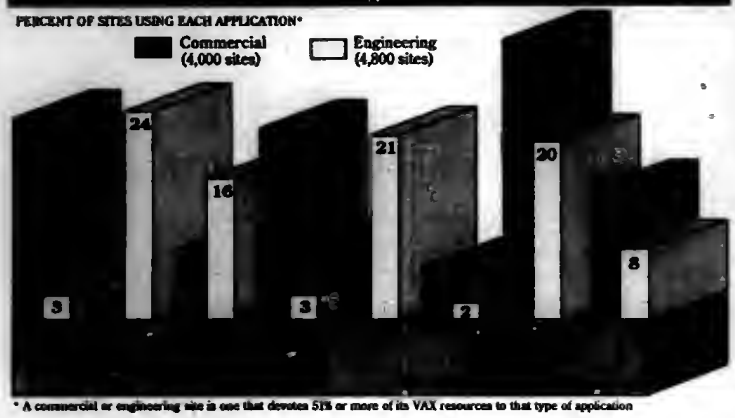
TRENDS

VAX application software

Few tools are a hit with both engineers and commercial users



* A commercial or engineering site is one that devotes 51% or more of its VAX resources to that type of application

The applications used at Digital Equipment Corp. VAX sites show a distinct split, according to a survey of 4,800 scientific and engineering sites and 4,000 commercial sites by Computer Intelligence.

The VAX and its predecessors, the PDP-11s, were quickly established in what became DEC's traditional stronghold — scientific and engineering computing.

The applications that dominate at those sites are among the earliest uses of the VAX, including computer-aided design and manufacturing, data analysis and computer graphics.

For several years, however, the VAX has been successfully invading business offices and serving as a general-purpose commercial processor. At those sites, the applications that predominate are accounts payable, general ledger and payroll.

In a few cases, such as DEC's All-In-1 office automation package or financial analysis applications, the software is broadly used at both types of sites.

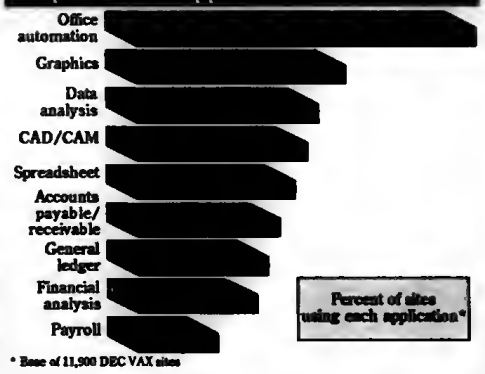
In addition, the practice of buying commercially packaged applications is growing at VAX sites overall.

During the 18-month period between January 1987 and June 1988, the percentage of sites relying on in-house developed software for general ledger declined by 10%. "In-house" includes custom-developed software, whether it was developed internally or by an outside firm.

In-house-developed personnel and purchasing applications likewise declined by 25% and 15%, respectively.

CHARLES BABCOCK

Departmental applications are favorites



* Base of 11,900 DEC VAX sites

In-house development is declining

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CW CHARTS

INSIDE LINES

The more things change . . . IBM sales reps will be offering AS/400 Total System Lease deals themselves rather than referring potential lessees to IBM Credit Corp. The goal is to expedite the deals for both sides. The lease contracts will reportedly be simple, two- to three-page documents. This arrangement reminded one analyst of the days when IBM's typewriter and copier salesmen handled similar deals. When he mentioned this to IBM mid-range honcho Steve Schwartz, Schwartz laughed and replied, "We got the idea from a former copier salesman."

"Lies, Damned Lies, and Benchmarks." That's the title on an extract submitted to *Computerworld* from an upcoming independent report on how strictly such vendors as Sybase, Relational Technology and Tandem complied with an emerging industry standard, the debit-credit benchmark. Tom Sawyer, a consultant at Codd and Date Consulting Group, and Omri Serlin, president of Itom International, teamed up to provide a comparison of transaction processing among DBMS products. The report also outlines ambiguities in the benchmark and ways they are exploited.

Smokin' out NCR's position. NCR is expected to announce a smoking limitation policy this week. Cigar-chomping Chairman Charles Exley is reportedly lighting up less frequently in preparation for the policy, which will restrict tobacco intake to certain portions of the Dayton, Ohio, firm's facilities. Still smoking, however, are rumors of Unisys's interest in acquiring a hot computer or communications company. Although NCR's name is still being mentioned as a possibility, another company circulating through the rumor mill is Minneapolis-based Network Systems Corp., purveyor of the Hyperchannel.

Don't let those guys in the door. The most recent round of rumors concerning Unisys's acquisition interest in NCR had its genesis in a June 6 visit by some Unisys executives attempting to sound out the Dayton firm on its Open Software Foundation stance. Unisys has aligned itself with AT&T and Sun, while NCR has remained uncommitted. NCR's stock climbed more than three points that day as word of the visit spread throughout the company to Wall Street and eventually to the media.

Those lazy, hazy days of summer. The release date of 3Com's OS/2-compatible generation of its 3+Open network operating system has slipped a few weeks, a spokeswoman confirmed. "Full betas" were originally slated to ship this month, but 3Com is now looking at a mid-July release date. After scrapping plans to do so at PC Expo, 3Com now says it will announce release dates and pricing for the software next month. Also changing on the quiet is the name of 3Com's Bridge Communications subsidiary, now called the Enterprise Systems Division. For the time being, Bridge products will retain that moniker.

Static in the atmosphere. It's not just products with dynamic random-access memory chips that face rising costs because of short supplies. There's a static RAM, or SRAM, shortage ramping up as well. SRAM chip prices have increased from $6 to $10, according to Gateway Communications President Walter Schramm. On the DRAM side, vendors say supplies are holding steady, but prices are going through the roof. Excelan, for example, purchases 50,000 DRAMs a month. At premium prices, it is forced to pay an extra $3,000 to $4,000 more for the components, a spokesman says. Anyone who says they are not skittish is probably lying, a 3Com spokeswoman adds. But in six months, "you will probably be reading about price drops," predicts Mike Barker, president of Micom-Interlan.

Let's de-tinker a little, the U.S. chip industry says. To increase the supply and, yes, decrease the price of DRAM chips from Japan, a semiconductor association wants to drop antidumping duties for particular chips that no U.S. vendors currently produce or have future plans to. If anybody remembers the good old days of free trade, call 617-879-0700 or 800-343-6474 and give News Editor Pete Bartolik some good examples of how politics and greed have messed up the computer business.

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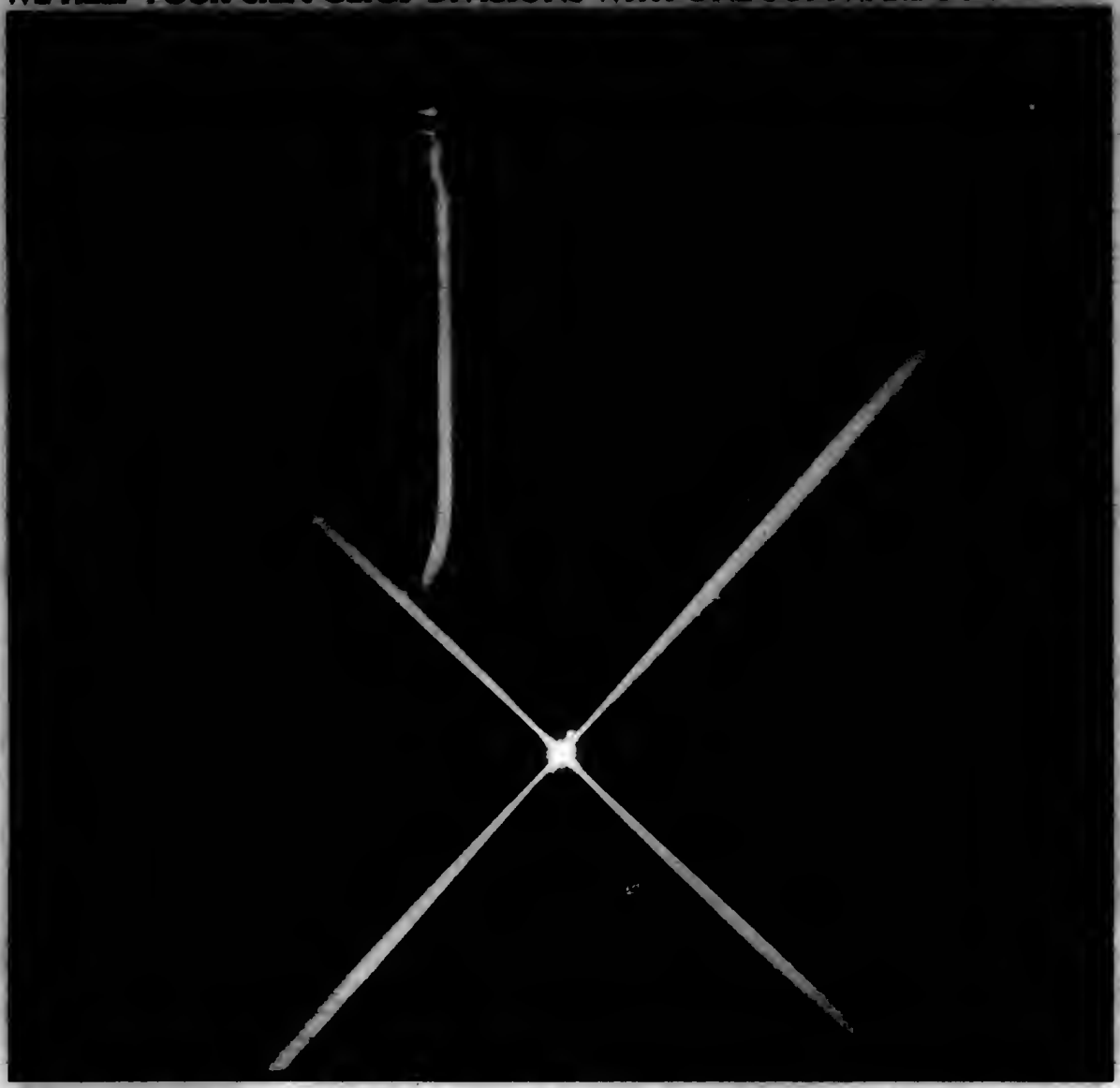

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"MSA has developed software that's flexible enough to adapt to the diverse needs of a company such as ours. So, even though our product lines are extremely different, all share the same software," reports Julie Zepf, Manager of Manufacturing Systems for CIBA-GEIGY.

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